# COMPUTERWORLD

# shows signs of strain

Software delays, data center costs are cited

#### BY MARK HALPER

RICHMOND, Va. - Electron Data Systems Corp.'s 10-year outsourcing and consolidation pact with Signet Banking Corp. is off to such a choppy start that

chind schedule. little over a year after en-g a contract estimated at een \$100 million and \$300 to, EDS and Signet are eval-g whether to move Signet's center facilities from their ent location to EDS' Hern-

resident William Dieter.
Such a move could threaten
cores of information systems
ble at Signet. It would also rep-sent an about-face for EDS, thich, one source said, won the
outract over IBM and System-



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HI 48103

# to retain IS jobs. At the same time, EDS and

# EDS/Signet contract | Borland stalks IS dollars

Integrators, key execs team to woo top users with multipronged assault

#### BY MARK HALPER



#### Compag to take radical tack

Will recast as integrator, software provider

BY MICHAEL FITZGERALD

mexamorphous from a hardware maker into a single point of con-tact for integrating systems and providing software to high-end users. Compaq said pieces of the plan will be announced during the course of the series.

## DEC flip-flops on Unix workstation strategy

BY MARYFRAN JOHNSON

MAYNARD, Mass. - A fr

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#### IN THIS ISSUE



#### **NEWS**

4 The DEC user society planning a symposium on

16 ISSC lands a 10-ye contract with Harvest

#### Quotable

inged products so my times and ged dates and

nises so many is that I simply do t trust DEC any

### DESKTOP

ENTERPRISE ETWORKING 55 Users will find the messaging backbone an

LARGE SYSTEMS 65 DEC will unveil Alpha-ready VAX systems.

#### The 5th Wave



72 New Product In-Site: Users evaluate EMC Symm trix's RAID large system storage devices

APPLICATION DEVELOPMENT

77 Corporate users are proceeding cautiously with object-oriented technology.

#### MANAGER'S JOURNAL

99 Earthquakes aren't only crisis that Charlen Schwab's Sheri Anders

#### **EXECUTIVE REPORT** owing like mad in tough arkets. What's the IS role:

IN DEPTH

#### DEPARTMENTS

6, 16 News Shorts 33 Advanced Technology

36 Editorial

100 Calendar 101 Intelligence Files

104 Computer Careers 114 Marketolace 120 Stocks

121 Computer Industry 122 Inside Lines

## EXECUTIVE BRIEFING

■ The Computerworld Smithsonian award winners prove that there's much more to computers than crunching numbers — they can improve our lives. This year's honorees applied technology to fight disease, save the wilderness, make surgery easier, teach kids math and science and more. Pages 91 and 118.

■ In one of the first crackdowns of its kind, FBI agents last week raided the head-quarters of an international computer bullequarters of an international computer bulle-tin board system near Boston that was alleg-edly distributing illegally copied software programs. Some observers see the strike as the start of a long, hot summer of similar ac-tion against bulletin-board software pirates. Page 12.

# Attention All dBASE Users: Your Windows Have Arrived.



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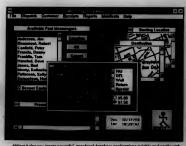
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## Notes productivity claims eyed

Survey says workgroup software could offer ROI of more than 100%

BOSTON — Lotus Develop-ment Corp. hast week took its first stab at defining productivity gains from its Notes workgroup software, releasing a report that claims returns on investment of 100% or more are possible. Some customers said that

hale the report is a good first ef-rt to quantify Notes productiv-y, they would not count on the ambiers to sell Notes to their sees. Workgroup software, ey said, does not lend itself soly to traditional measure-ents of productivity and so this of of early data could be mis-ading. What is more, they sug-ested it may not be necessary.

more quantitative tentifying, under president of corporate systems at Chemical Bank in New York. The bessel has been been at Chemical Bank in New York. The bessel has been been at the contractive at the contract and the contract and the contract and the grown to Bool members in the post 18 menths. The Lottes study, recincion II The Lottes

defined in a combination of time savings and revenue gained as a result of using Nozes. The report estimated annual benefits over a period of three pears, and the median pretar re-parts, and the projects paid for themselves within four months. Some of the returns on in-westment are whoppers. Dell Computer Corp., a study partici-ties and 1.3444 on two in-braze de-signed applications. The two

workers to tackie more ways, such as with the teamwork that Notes discussion databases help foster. As a result, the new how have no bases for

Yet Tim Deagan, manager of service tools development, said the numbers do not tell the whole Notes story. whole Notes story.

"There are no good measure-ments for identifying efficiency in this area," Deagan said. "Bot-toon line, people are finding their answers more quickly. You used to walk down the hallway to ask someone a question. Now that

## Note-able companions

ons is a checked to introduce a trio of group partners noter, maning the self-field issued based to in Netse companies. The software will also with Netse companies. The software will also within the too to these matters, and private partners and the maning software will also the instance of the self-disc Co. officials had not the manges software will be a self-field to the contraction of th

#### Angry AS/400 users ready for end to tiered pricing

BY KIM S. NASH

atures on the latest box, Thrig explained.

The idea is making headway among mainframe sortware mankers, including Computer Associates International, Inc. [CW, Jame 8], but not senong its midrange beethers. "It may make coopie space," in the way of life right now," and Carson Soile, president of Beltaville, Md.-bassed (Act. https://dx.

Md-based CAS. "People will always get hurt in any kind of arrangement," and Paul Margois, chief executive officer at Newton, Mass-based Marcana, adding that the issue is "in constant debate" among wendors.

He explained that to stay adver, the company must meet specific revenue goals to cover development costs, but Marcana is "willing to talk this through with customers who have com-

is "switing to tast the with customers who have com-plaints," he said.

Not all wendors subscribe to tiered plans. For example, Soft-ware 2000, Inc. does not charge for moving to the next series level within the same model family. Upgrading from an AS/400 B45 machine to a D45 or E45, for ex-



# IBM sues yet another memory vendor

Computer leasing group says IBM is 'stonewalling' efforts to remedy memory card problem

#### BY JOHANNA AMBROSIO

WHITE PLAINS, N.Y. — In an action that raises more red flags about the use of leased 3090s, IBM last week filed a law-

it BM memory.

Meanwhile, Ken Bouldin, pres
Meanwhile, Ken Bouldin, pres
the Computer Dealers and Lesso
iation (CDLA), a group that re many of the independent vendor BM has "stonewalled" his associatempts to help determine which ry boards BM considers to be c

a mentix Computer spokenwoman need to comment. An IBM spokenman said IBM found of out the counterfeit cards from Phose amputer after the cards failed at so er sites. He declined to say which us was are involved or how many there as "substantial" number of cards are insubstantial" number of cards are

A "mobitantial" number of cards are in-volved, he addo.
A counterfeit memory card is generally added to the consumer of the card in general position of matter of the counterfeit memory. Sometimes the counterfeiters affix what looks like an IBM label with a parts number.
But if the card steel is not authentic—manufactured and tested by IBM— it is not entitled to IBM service, according to the commany.

field in the last eight months. In Octobe 1991, IBM seed Confidence, Inc., based Rosemont, Ill., alleging that it, too, trade in counterfeit cards. That suit is still pen

In May, IM used there other companies — leaves in leaving parlines as "re-work in record parlines as "re-work in recording to the companies — leaves in leave in the work in recordings comparies that is now then trade. These companies are Da-Mydrate, file, in Bromand, Paz, and ESM, Orga, in Roude, IR. activity may begin to have an adverse impact on the 2000 classing industry, one industry watcher said. "The the cetter that know put heavy may have an adverse impact on the 2000 classing in-many laws conserted to barries in them, may laws conserted to barries in them, they might avoid them alterpather," and in Meditad, Mass. "That could destroy a white inclusior,"

hole industry."

But Darrell Balmer, a vice president at artner Group, Inc. in Stamford, Com., sagreed. "I don't think this suit will we that much of an impact. The memory oblem is pretty well-known out there,"

iid.
he "real problem," he added, is fing out which memory components ones fide and which are not. It's rath-fiscult to do that."
hat issue — how to determine which



#### NEWS SHORTS

n guidelines for computer ethics Computer Ethics Institute, based in Washington, D week released the "Ten Communicates of Compu t upsit released the "The Camanadament of Computer leave" for computer users, developers and definisirators, we death of following: Thou shills not use a computer to any whole the following: Thou shill not use a computer to a 'computer files and thou shall their about the social conse-ments of the program you are writing or the system; you are spaing. Led by technology consultant Ramon C. Burgein, institute is supported by the Bookings institution, Blad institute is supported by the Bookings institution. Blad institute is supported by the Bookings institution, Blad consulting Group, Inc.

Kerox stear wins ChO award
httria C. Burns, former cleif information officer at Xerox
orga, in Stanford, Coan, was mored "Intanse information
yates measured in the literal by the information systems
measured institute at layoh Coding in Baltimera, Burns, who
na promoted to president of Xerox's office products business
at in between, was called for agranding the productivity and
weelthing of the 15 function at Xerox. See also as a loading adcoance of Sparticipation in total quality management.

Cray unwraps SPARC-based server Cray Research Inc. last west amounted the Cray SAP sys-tem, the first in a planned series of Schilde Processor Archi-tecture CRNACI-based assurance products from recently required Planting Plant Systems, for, in Revertan, Or-separed Planting Plant Systems, for, in Revertan, Or-SPARC-based workstations and Cray supercomputers togeth-er on the same service. The SAP Plan sheety caught the gre-of the the National Institute of Genetics in Japan, which has placed in order.

Husprint targets Unix applications his international last week wrapped up is moneping set of sys-me and network management representes — a bind of heart that for developing applications — which the company and consistent in Duritherd Management Environment, Metted to his between 1993 and 1994. Units International also und its members can get early ancess through their System Laborations, fact, to an object-oriented framework for distributed up-ternational control of the cont

HP's OpenMail to support Mail 3.0 Microsoft Cays, and Hewlett-Rubard Co. and they will pinchy develop a free fact will allow Microsoft Mail 3.0 to act as front end to 187 OpenMail. The driver should be resided in 187 OpenMail. The driver should be resided by Application Programming Interface (DMIP), maintain being maintained to the fall MAPI specifications while also allowing unare secons to an open standards and their beds demanging systems with connections to X.400. A fully MAPI compliant version is achieved to be completed entered.

Short takes
IIII and Chapton Corp., are discinning a cooperative agreetime of Chapton Corp., are discinning a cooperative agreetime of the control of th More news shorts on page 16

### DEC covers client/server bases

VAX/VMS link to NetWare to rival interoperability with LAN Manager

BY ELISABETH HORWITT

MAYNARD, Mass. - Digital MAYNARD, Mass. — Digital Equipment Corp., may be being its long-term client/server strategy on Microsoft Corp.'s Windows New Technology (NT), but it is hedging that wager with a soon-to-be-announced software platform designed to integrate WAX/MS with Novell, Inc.'s Net Wars.

Net Wan.

"DEC is figuring on NT as a viable long-term marketplace has it staking a strategy of betting on all frosts," said Barry Gibert, director of local-area network services at Computer Intelligence in La Join, Calif.

Pathworks for Net War represents a quantum lega in DEC's efforts to open up its proprietary WALVMS environment to other weather of client/server products, control and control client/server products, control client/serv

er vendors' client/serves ...

"What we've heard from DEC is that [Pathworks for NetWare] will actually turn the VAX into a file server for ...

"Black Clients — which is ...

"Black Clients — Which is ...

"Black Clients — Which is ... NetWare clients — which is what we want," said Ed Honico, WAX systems manager at Dr. Pepper/Seven-Up Cos. The company will be receiving a beta-test copy of Pathworks for NetWare in a couple of weeks.

pixed that DEC is working on this (see story at right). DEC needs to take Novell into account as it seeks to ex-pand its client/server presence beyond its own customer base. Out of 9.400 DEC VAX sites in on of 9,400 DEC MAX sites in Computer Intelligence's database, approximately 30% were also identified as NetWare users. We have to accommodate Nowell's 60% where of the LAN Computer Intelligence's database, approximately 30% where of the LAN Computer of the LAN Computer of the LAN Computer of the LAN Computer of the NetWare version of Pathworks in bidirectional file and printer sharing between WAX/NAS systems and NetWare cleans. NetWare for VMS, a former NetWare for VMS, a former Novell product now marrised by

NetWare for VMS, a former Novell product now marketed by developer Interconnections, Inc., allows Net Ware users to ac-cess VAX files and printers but does not allow VAX users to ac-cess files and printers on the per-

Vare to risual interroperado and consense LAN, Blanks on anticonsense LAN, Blanks on anticonsense LAN, Blanks on a second for the later of the later

med. However, Dr. Pepper is still

electronic-mail messages ac NetWare and VAX servers. "We definitely want one s

rectware and WAX Servers.
"We definitely want one server to pass E-mail to another," so
that clients on one type of system can address clients on the
other, said Jim Bucher, superiotendent of computer services at
Inco Ltd., a Canadian manufac-

Pathworts for NetWare will provide this, but with a catch bear will have been install a CUIT X-600 gateway between concern said. Next NetWare Section 1, 200 and 1, 2

High ambition

Description of the control of the co

ELISABETH HORWITT



## Zenith Data reworks line in bid to recapture lost momentum

BY MICHAEL FITZGERALD

week unveiled a completely re-vamped product line.
"They were hemmed in with an outdated product line; now they have a full [up-to-date] product line that does not have suit a single focus," and John Dunkle, president of WorkGroup

The write stuff

cuità Data will demonstrate in fiert per capable sys-tem nett weak IV. Expo in New York, the company.

Tonactivity claim the 2-Natesyat for Verchookay?

Tonactivity claim the 2-Natesyat for Verchookay?

Tonactivity claim 1997. Tonactivity claim

ease of use, connectivity and design, Zenith Data said.
"The modular concept and the idea of investment protections [and reasonable cones," said Richard Amacher, manager of Richard Amacher, manager of trations at General Motors Corp.'s Motor Sports Technology Group in Warren, Mich. While Socused Hargely on portable computing, Amacher said his group also liked Zenith Data's emphasion to half-in net working, emphasion to half-in net working. Technologies, Inc. in Hampton, N.H. Zenith Data, acquired by Groupe Bull in late 1989, has long been known primarily for

As of last week, Zenith Data's

As of last week, Zenith Data's product line ranges from low-end intel Corp. 80386SX-based notebooks to monitors to high-powered tower-type servers. Together, the products repre-sent a four-pronged focus for Ze-Future product generations will atress investment protec-tion (through upgradability),

More than products
The company's makeover went
beyond the more than 40 products it introduced, said Enrico
Pesatori, Zenith Data's presideut and chief executive officer. He pointed to a 25% increase in research and development spending and the inauguration of a customer assistance center, as well as efforts to expand direct sales to corporations

males to copporations.

Analysis gas feeds th Data Analysis gas Castish Data strategy qualified praise.

"It's perty gouldind praise it's gaine a Superiore from the life of the proper of proper of the proper of t

Pesatori acknowledged that Zenith Data faces strong compe-tition. The company's market-share has shrunk from 5% in the

late 1980s to less than 2%, ac-cording to industry estimates.

"It is difficult to see it [being] stiffer than what it is today," Pe-satori said. At the same time, be also confirmed that Zenith Data will build 150,000 notebooks an-nually on an OEM basis for IBM, which gives it an important source of volume.



Hord Memory Bus Street 25-800: 2000-byte 400 bytes 27/20 \$1,790 23-200; 20020-byte 450 bytes 65A 53,395 SO-Mile Stellings dill bytes MSA 50,300

25-830; 6688-byte 288 bytes XI/82 52,199 All products are currently available

Range of chips
The eight models of the Z-Server line use Intel's 25-MHz
1486SX and 33-MHz and 50-MHz
486DX chips. A pop-out
motherboard will allow users to
install Intel's PS chip when it ap-

The 2-Sport, a line of low-cost 348-SX and 446-SX motors, and the control of the install Intel® PS chip when it ap-pears later this year.

The Z-Station includes 19 models using a range of chips, from Intel® 255-MHz 8055X to the 2555-MHz 8055X to the 2555X to the 255X to the

Compaq to take radical track

A. Notepak will ship with Microsoft Corp.'s Windows for Pen Computing and Slate Corp.'s Dsy-timer software. Nonterman said Zenith Data will short support Go Corp.'s PenPoint operat-ing system with future, pen-only products that it will build as the market develops.

ompanies to do it."

Analysts said Compaq has a not at successfully executing its mittious plan. "They can pull it mhitious plan. "They can pure, ff — they we got the money, nd they've told Wall Street it ill take them a while to re-oup," said Andrew M. Seybold, ditor of industry newsletter The Outlook on Professional computing" in Boulder Creek,

thet research firm Work-up Technologies, Inc., sen you look at the trend in naining, Compaq has the po-ial to become a force here." ome information systems agers contacted hast week esseld interest in the plan;

ers, however, were skepti-

MICHAEL FITZGERALD

cal.

"The concept is stellar, and if an organization can pull it off, I would expect someone like Company of a will be specially said Douglas Marphy, director of IS at Comcator. "The single point of contact is nice, but IBM tried it, and there are enough horror stories about that."

"The home," found authority found and the work of the contact is not be seen to be seen that the contact is not be seen to be seen to

about that."

"We haren' found anybody to date that can be on top of excrything, especially with the rapdity changing isolutty," agreed 
Patty Houk, manager of LAN 
systems planning at American 
President Lines in Oakland, 
Calif, "You get to a certain point 
in dealing with multiple vendors 
where you end up with a to of 
fingerpointing, and sometimes it

is more than difficult to get around the integration issues, At Texas Commerce Bank-shares, Inc., however, Compaq

N THE NEW paradigm of the '90s, [users should] consider Novell almost a division of Compaq. of Intel and Microsoft a division of Compaq. If [users] need changes, we'll work with the companies to do it."

RONNIE WARD COMPAQ

president of technology opera-tions at the Houston-based bank holding company, said he worked with Compan, Viewstar Corp. and ComputerLand Corp. to set up a 300-node imaging-based LAN in nine months.

as passed an initial test with fly-ag colors. vice wery large imaging project, basi-g colors. cally as a systems integrator. They had a strategic relationship

with Viewstar, and [Compaq] solved a lot of things for us, down to the BiOS level," Cournyer

ompanies' attention. We looked to communicatives cards, and hey actually resolved some exhelms for me that I doubt I ould have resolved by myself, since I was buying just one or wo cards. They also helped us on the Novell. Compaq was very exponsive. "Courniver added that be was urrently working with Compaq "some CICS right-sizing projects."

ects."
Still, some Compaq uners, such as Eric Singleton, director of IS at the Orange County Appraisal Office in Oriando, Fiz., flatly said they would not go to a single point of contact.

# A COOPERATIVE-SERVER DATABASE FROM GRACLE

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The fundamental problem with early client-server database management systems is that applications cannot access data on more than one server without a lot of extra programming. This programmate approach to accessing data on multiple servers is in stark contrast to the totally automatic approach provided by ORACLES."





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John Young President and CEO Hewlett-Packard Company



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Scott G. McNealy President, CEO and Chairman Sun Microsystems, Inc. For more on ORACLE7, just call 1-800-633-1071 Ext. 8180 Find out what these industry leaders are excited about.

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## Supreme Court paves way for antibundling lawsuits

WASHINGTON, D.C. — A major anti-trust ruing by the U.S. Spreene Court last week is expected to unleash a slew of lawauits against bundling practices by computer manufacturers that have shut out third-party maintenance firms. The court, in a 6-3 vote, ruled that Eastman Kodalt Co. can be brought to tri-

parts.

In the computer field, experts said, the antitrust ruling will make it easier for independent service firms to challenge computer manufacturers' practice of denying access to diagnostic software, spare



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work with corporate data on multiple plat-forms. From their own desktops, Trans-parently. With exceptional ease-diags. works — Digital's strategic software for implementing NAS — so application devel-opers can access data enterprise-wider, opers can access data enterprise-wider, opers can access data enterprise-wider, software. And to further appel and simplify development, we're implementing powerful development development of the property of the power development of the property of the property of the property of the development of the property of the property of the property of the development of the property of the property of the property of the development of the property of the property of the property of the development of the property o

even more. Tell the boss about Ross: software that puts the latest Digital technology to work worldwide. Call us at 1-404-257-9198 Ext. 502 for a free Ross evaluation.

HAT WILL BE good news for customers, who can expect to benefit from the price competition between endent service independent service providers and hardware manufacturers.

nopolistic practices to warrant a full trial.
Computer manufacturers such as DigiComputer manufacturers such as DigiCo., Usinys Corp. and Wang Laboratories, Inc. have sieded with Kodak, so the ruling is seen as a textical defeat for them as well, observers said.

S. Katz, & San Francisco atterney representing a coalition of independent computer service firms, predicted that as ar-vell of the ruling, the current batch of the coalcoal settlements of the ruling the correct batch of the coalcoal settlements of the ruling the correct batch of the coalcoal settlements or recolved in outofcoart settlements.

cours settlements. Then there will be a new wave of law-suits filed by independent service firms that had stayed on the sidelines until now, Katz said, predicting that many of those suits will be settled, too.

The computer industry acknowledged that it will now have to defend its bundling reservices in a new round of humits: "M.

must it was now have to defend its bundling practices in a new round of lawarist. Act ter it all shakes out, hopefully been practices will be quite secure, but there ms be some litigation around the edges," assisting a lawarist of the sound litigation around the edges," as Simon Lazarus III, a Washington, D.C. Buttoney representing the Computer an Business Equipment Manufacturers Association.

#### CORRECTION

consulting, Inc., the 150-person ing and systems integration con used in Houston, was incorrect



The Rose Systems have to a trademark of Rose Systems. See VMS and ULTREE are trademarks of Digital Equipment Corporation, UNIX in a registered trademark of Unit Systems Laboratories. See SCD in a registered trademark of the Sante Cruz Operation, Inc.

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#### DASD / Data Management Group

SEA1 DISDOUS management took an opposite standards licensted at flowards of MPV data centers workside. These DASD management products of contract some products DASD management products of the configuration and has see their standards are configuration and his see at their standards the wide acceptant and the set of the configuration and has set their standards are settled as a company of performance. SEA1 software his activitied the wide acceptant and the to our unique activity to transpersion in series only are existing DASD management system. We pursuited system propilicant savings in DASD dependance in any MDAS general products are settled as the configuration of the configuration and the configuration of the configuration of the configuration are configurated as the configuration of the configuration are configurated as the configuration of the configuration are configurated as the configuration of the configuration and the configuration of the configuration of the configuration are configurated as the configuration of the configuration and the configuration of the configuration of the configuration are configurated as a configuration of the configuration and the configuration of the configuration of the configuration and the configuration of the configuration of the configuration are configurated as a configuration of the configuration and the configuration of the configuration of the configuration are configurated as a configuration of the configur

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## Oracle client/server RDBMS to debut

Adding competitive features delayed Version 7.0, but next-generation tool now slated to ship in fall

#### BY JEAN S. BOZMAN

NEW YORK — After a three-year prelude, Oracle Corp. will unweil today its next-generation relational distabase management system, pitching it to informa-tion systems abops that are mov-ing from monolithic to distribut-

Oracle 7.0

gres 6.4

Sybase 4.8

ofermix 5.0

atiyas ani dax week. Sources close to Oracle ani oue features were added to Counter a new wave of competitors' products.

"When you have the dominant market thare in an industry, you don't have to leastfront be competition. Just being status quo can be were youerful." and Terence Quinn, a vice president of research at Kidder, Peabody & Co. in New York.

"Oracle is giving you the nois," said James Bosco, a sys-tems consultant at ITT Hartford

tools, san james, tems consultant at ITT Hartford Life Cos. Employee Benefits Di-vision in Hartford, Conn. The Hartford is one of Oracle's 14 Alce Partners that have tested

liance Partners that have tested Wersion 7.0 code since August 1991. "Su have to know when to use them." Booo said.

The Alliance Partner sucre reported significant data processing speed improvements over Oracle 5.0 and 6.0 Many said they were pleased to see that the Version 7.0 code was virtually bug-free, unlike the beta-test and production copies of Version 6.0 released in 1989.

Up to 500 trans./sec. Ira Kirschner, director of techni-cal services at J. J. Kenny Co., a cipal bond firm in New said Version 7.0 was ap-Tork, said version 7.0 was ap-preciably faster than older ver-sions. "Historically, when we ran Oracle in a LAN, we got 10 transactions per second. When we ran it in a WAXcluster, we got 30 to 40 transactions per sec-ond. And now we're getting 300 to 500 transactions per second on a Sequent 2000 Model 750,"

However, some analysts re-main skeptical about the robust-ness of the Alliance Partner tests, which were often limited to one or two physically isolated

"They haven't stress-tested version 7.0 as if they were run-Version 7.0 as it they were run-ning it in a production mode," said Charles Phillips, a senior software analyst at SoundView Financial Group, Inc. in Stam-ford, Conn. "More bugs may come out when users really start using all of Version 7.0's fee

Some early users have al-ady tried to put Oracle's disready tried to put Oracle's dis-tributed processing and recov-ery claims to the test. A team of database programmers at Mobil Corp.'s Paulsboro, N.J., refinery tried to crash the Version 7.0 system in order to show its resil-

oft."
The team then queried the in-terrupted database to see what data survived and whether bro-ken transactions had disap-peared. "Everything got rolled

back and taken away," Manieri naid, "jast as it should have." Many Oracle 6.0 users are ex-pected to migrate to Version 7.0 next year. Some will get free up-grades for options providing pro-cedural programming and paral-lel server functions (CW, March

have shadow-board with Version have shadow-board with Version Carlo Carl

#### Experience talks

celevarie. The many decide but one new case of the celevaries are being decided but one new case to experience of the celevaries of the ce

JEAN S. BOZMA

Version 7.0 — or Cooperative Server, as it is expected to be dubbed — allows users to store application code right issuite the database engine. The saide the database engine. The between the control of the database. Ownil programming time is programming time is programming to the database on "trigger" the server's stored procedures, users said.

Yes

## FBI closes bulletin board, seeking piracy evidence

BY JAMES DALL

Wanch said.

SPA officials said the federal government is only just beginning to recognize the seriousness of the billions of dollars that software makers lose each year as a result of illegally copying their reverses.

Executing a criminal search warrant, six FBI agents raided the base of Davy Jones Locker puters, modems, financial records and a program that was used by the board. Although the FBI made no arrests, the section attention with the camined to determine if an arrest warrant should be filled. Meanwhile, the SPA filed a civil invesuit against the alleged operator of the bullet in board, Richard Kenadek, seed of charded and control of the control of the chard of the chard

Richard Renadrix, and charged him with violat-ing copyright laws. Renadric could not be

ment.
SPA officials said they have
not determined whether to go after the people who downloaded
the bootleg outware.
For a \$99 yearly fee, the
Davy Jones Locker bulletin
board offered subscribers in 36

bridge, Mans.
Wasch acknowledged that the
SPA has not paid enough attention to Blegal piration to bulletin boards in the past;
"But now we're going to con-centrate on it," he said, estimat-ing that of the thousands of com-puter bulletin boards that exist, perhaps "several handred" en-

#### Informix **Database Technology Helps World Vision Reach** The Children.



When World Vision, a non-profit international Christian relief and relopment agency, needed to manage \$225 million annually in fundraising and bution, they turned to us, Informix, the experts in UNIX\* relational database

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NIX DATABASE EXPERTS.

# DEC flip-flops workstation strategy

Struggling for power
Sources close to DEC said its
Usin group has been caught up in
power struggles between a
vid Stoot. DEC cutties and vid
Stoot. DEC cutties and vid
Stoot. DEC cutties and vid
Stoot. DEC cutties and vid
stoot recent reorganization.
Stooe gained control over the
Unit workstation group, and his
decision to halt OSS?1 develop-ment on future DEC cautions report only caused as much of as inport only caused as much of as inport only caused as much of as inport only caused as much of as in-DEC's overall strategy remains based on migrating all of its VAX/VMS and Ultrix customers to the upcoming Alpha systems, which will run VMS, OSF/1 or Microsoft Corp.'s Windows New Technology (NT).

Matt Kochan, a DEC merketing essecutive, essecutive,

ternal spower as it del accelerant in Richams and ESC-bard from handerde of alermed customers. The composition of a served customers were a served to the served of the se

Set and Default utilities.

Problems in making the transition to Alpha are generally minimal, provided developers were disciplined in their codewriting, according to several mainbers of DECUS involved

where there were had programming practices and people disk't othere to standards," said Tod Nieland, a senior committations consultant at Hansler Committation Systems Rechnology in Dayton, Oko, and a member of the VMSSIG and the Birrary committee at DECUS.

Some information systems managers, however, are worried about the WAX-to-Alpha migration.

"There is a lot of code out there which is dependent on lit-tle quarks in the operating sys-tem or on the (WAX hardware)." said Connie Beckman, director of computing services at Alfred University in Alfred, N.Y. "The worried about what will happen

IBM endorses fiber for workstations

BY ELISABETH HORWITT

Bines a vendor waffling like that."
"As long as they give me a reasonable release of Ultrix, I can lew with hat," and Mo-hamed B-Loxy, director of sci-estific computing at the Dama Farber Cancer Institute in Bos-ton, "What I cannot be with is being orphanet. having Ultrix development stopped and never being able to get to OSF/1."

PCS\*, according to compa spokesman Kent Bossan However, Ultra Network's pr prietary software enables no timer RS/6000s to realize throughput of up to 100M in sec. — a far greater percentage of total bandwidth than is typica in fiber-based networks. Re-sunge said

# users on migrating to Alpha

**DEC** user society to educate

MAYNARD, Mass. — The Digital Equipment Computer Users Society (DECU) will offer DEC uters advice and the tools needed to migrate to the enert-generation Alpha systems at a symposium that falls a Kasheim, Call?

DECUS officials said they will force on migration at the symposium of the symbolic core on migration at the symposium of the symbolic core of the symbolic

"There will be seminars pre-ceding the week-long sympo-sium, and we'll be offering the whole shebung — everything you need to do convenion and porting," said likh Dejoorly, a to tchnical specialist at The Faxon Co. in Westwood, Mass., and chairman of DECUS' VMS Spe-cial Interest Group. By then we kept to have a good body of us-ers who will have done it, and you'll be able to talk to them di-rectly."

you are time to task or task or task.

The DECUS Starter Kit will offer the most popular applications and tools available with the current VMS Kit, incheding Kermit; Command File, which lets users twest attribute of files on the system; The Verb, which askyres Digital Command Language command Language command tables; Watcher, which shots down idle tearminal scroeness; and Modify.

#### **Borland stalks IS dollars**

on a trouble reads in marketing.

"At this point, we're a day late and a ollar short," conceded Snyder, who said to hassess the August Programs were designed to emody the situation.

Among the moves to be disclosed are to following: the following:

Strategic sales and marketing agreements with half a dozen large systems in-

stemas with man a dozen arge systems in-tegrators.

Borland's top nonsales executive will call on some large corporate accounts.

A volume licensing agreement that would allow IS shops to qualify for dis-counts on products purchased through re-

llers.

line.

The PC software company is negotiating agreements that call for joint sales calls with half a dozen integrators. The firm expects to finalize terms during the next several weeks, Synder said.

He declined to reveal the names of the integrators, but one source inside Borland.

ORLAND WILL appoint each of its vice presidents as the lead corporate accounts.

said the company is talking to Electronic Data Systems Corp., Andersen Consultang, Computer Sciences Corp. and Deloitte & Touche, among others. In an interview last summer, Borland Chairman Philippe Kahin insisted that the internal consulting efforts then recently lausched by rivals Microsoft and Lotus constituted the wrong approach, it was etter, he said, to partner with third-par-consultants than to compete with

them.
Analysts said partnering with integra-tors or other companies better known to St management should help Borhand's copporate salest effort. Borhand now has a small direct sales team of about 50 and generates most of its overall salest hrough mail order and reseliers.
If don't think any desistop company the companies of the companies of the companies of the other of Michael Reylon, a sector san-ciate at market research firm Creative Strategies Research International, Inc. in

iate at market research firm Creative Entregies Research International, Inc. in Santa Clara, Calif.

"MIS is the next gatckeeper they have og obtrough," added Neal Hill, a semior nalyst at Forrester Research, Inc. in ambridge, Mass. "It think the systems netgrators are key to making those high-pect IS contracts because a lot of the MIS eople really don't know Borland."

VP contracts
Under a program that Borland will call
Executive Adopt an Account, Borland will
appoint each of its vice presidents — inclaring those in charge of such nonsales
areas as finance, operations and IS — as
the lead point of contact for specific cor-

porate accounts.

"Their job will be to baild a personal relationship with the senior IS manager or CIO," Snyder explained. According to Snyder, Kahn has been very active in

der auf.
Analysts such as Hill said the program sounds like "a step in the right direction." but be expressed some sleepticism. "It's one of those things that sounds like a good idea that others have tried, but does it work? I mean, the lync president of finance bas a job to do," he said.
The educational semisars should be useful in explaining the intricacies of Bordan's forthcoming PV eversion of its Inter-land's forthcoming PV eversion of its Inter-



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#### NEWS SHORTS

Ix purveyors adopt WizDom Open Software Poundation, San Microsystems, ry SunSoft and Unix Systems Laboratories, In Open Software Poundation, San Microsystems, Inc., sub-say San Soft and Unit Systems Laboratories, Inc. (USL) was subject to adopt a green in the supervision of Systems, Inc.'s WalDam object-oriented technology in the site for remaining multi-resulted distributed Unit systems. Dom will also be integrated into USL's Unix System V.4 San's Solvier.

#### IBM rings up grocery outsourcing contract

BY JOHANINA AMBROSIO

TARRYTOWN, N.Y. — IBM's outloarting unit last week served a soup-to-outs dead to a supermarket charted with BM's Ark, has contracted with BM's Ark, has contracted with BM's Corp. (SSC) for data center operations, data network and applications development. The value of the 10-year deal was not dischard the contraction of the 10-year deal was not dischard the contractions of the contractions of the contraction of the contraction

of the 10-year deal was not dis-closed.

"They'll be running all our data processing services— maintenance, operations, devel-opment, you name it," said Rot-ert Rough, chief financial officer at Harvest Foods. The company operates 54 stores in four South-ern states.

Also serviced the deal was now.

ern states.

Also part of the deal are new applications that ISSC will develop and implement, including instore systems for checkout and customer service and electronic

#### Strain in EDS/Signet pact

One Signet source said EDS proposed the shift in order to save money through payroll reductions and to be able to move processing to its larger machines in Herndon where it benefits from greater economies tion to some of the employees af-fected by the possible move, he

of ncale.

Signet's interest is in freeing
up space now occupied by IBM,
Amdahl Corp. and Unisys Corp.
mainframes for other purposes,
according to Dieter.

An EDS spokesman declined
to comment on the Dallas-based
systems integrator's interest in

lected by the possible three, as abe.

The list week described to the data context proposals to one that context proposals are taken to the same taken and the same taken as signet, both inside and containe of data processing operations, all aimed at rusning the bank more efficiently.

A source close to both comparison and witching often context would entail a renegotiation in the cripical contract, called few operations to stay on-site here.

HAT CONVERSION, which was to have been completed by May 1 - 12 months after the contract signing — has fallen almost five months behind schedule.

changing venues.
Deter would not any exactly
now many jobs may be threatnow many jobs may be threatnow many jobs may be the 
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property

Dieter said the revised terms would be worked out during the course of the evaluation.

The current EDN/Signet contract calls for EDN to consolidate Signet's Usinys. Annuall and BM mainframes onto Annualls and IBM couly platforms at the bank's Sizer Point data center located outside of Richmond.

Signet Signe

#### OS/2 exec leaves Big Blue

reagance and wear or per-sonal reasons. According to a compa-ny spokesoman, Steele's departure is "absolutely not" the result of any problems within the exec-utive renals of OS/2. Steele could not be reached for comment, but sources said be will join In-tergraph Corp. of Hunts-ville, Ala., as an executive vice president.

tergraph Corp. of Hunts-ville, Ala., as an executive vice president.

Steele became IBM's lead man in the trenches by providing biweelily up-dates from the laboratory on OS/2" a progress earlier this year.

He is replaced by Lois Dimptle, who was previously a director of the Per-sonal Systems program-ming development strate-

Steele had worked at IBM for 28 years. ROSEMARY HAMILTON

nd Washington, D.C., had accu-ulated an unweildy combina-on of various hardware and oftware brands. This in turn led

JUNE 15, 1992

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### Imaging growth slowed by recession, study says

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BY ELLIS BOOKER

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3 member vendors and 745 agement revenue increased just users, was prepared by Dete & Touche Management soulting. It will be officially resource from the 28% growth rate for the years 1991

er, the study found interr revenue for U.S. imagir

noted a distinct uptick in activ during the first quarter of t

#### Leading Edge jumps the gun

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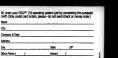
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#### Northern Telecom offers micro teleconferencing

BY JAMES DALLY

#### Reach out and touch

# Keyboard injuries provoke lawsuits

tendinitis and carpal tunnel syndrome, cause tunnel syndrome, and tunnel syndrome, and tunnel syndrome, to trial, so it in hard to say how much financial exposure the industry faces. Jury awards in worker's compensation cause worker's compensation cause.

#### Is messaging hazardous to your health?

BY JIM NASH

MELVILLE, N.Y. - In a novel, MELVILLE, N.Y. — In a nowel, of unopoular, reaction to in-creased reports of repetitive stress injury, an East Cossts newspaper has taken the unusual step of banning electrosic mes-saging among its reporters. For Newsday, the issue is simple: Less typing means less physical strain.

strain.

The policy, which eliminated reporters' ability to send electronic mail, is about 18 months old, according to Bob Keane, assistant managing editor at Neurolay and a member of a labor

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er 120-MB hard drive

and the right stuff in.

Open either COMPAQ Contura PC and you'll discover a large, 95-inch screen beaming brightly.

Product nature parameters thereta sky be Wadowala and for argintered analysis of date respective companies

# AN INEXPENSIVE PC THA FROM THE COMPANY T

What happens when the best computer engineers in the world design a low-priced desktop PC? You get the new COMPAQ ProLinea Line of PCs, perhaps the best value PCs in the world. What happens when a clone maker designs a low-priced PC? You get what you pay for.

When Compaq engineers set out to build an affordable, full-performance desktop PC with

all the essential features, there were many options

to choose from.

We could have bought

an existing low-end computer company.

We could have farmed out all the manufacturing.

We could have bought parts from the cheapest vendor in town.

But then all we would have ended up with is another inferior, low-priced



The entry a provided presented former Provides and may not be enabled a communication former for Company Communication Control for Section Acade C 1997 Communication Communication

# T'S AS GOOD AS A COMPAQ. HAT OUGHT TO KNOW.

clone. And what we were determined to build was a low-priced COMPAQ

Which is what you told us you wanted.

computer.

So through some high levels of chip integration and some equally high levels of engineering, design

> Intel 386SX/25 + small footprint + 2 MB RAM + 2 ISA

> slets + 2 drive bays + 40- or 84-MB hard drive Intel 3865X/25 + 2 MB RAM

+ 3 ISA slets + 3 drive bays + 84- or 120-MB bord drive

Intel 486/33 4 4 MB RAM

4 3 ISA sless 4 3 drive bors

installed Microsoft MS-DOS 5.0 as published by Compaq

design and manufacturing.

to deliver 100 percent of

While still managing

+ 84- or 120-MB hard drive

All models include high-resolution 1024 a 768 video and prethe virtues you've come to expect from Compaq.

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cessing power.

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And each comes with a high-resolution 1024 x

and just plain common

Sense, we've managed to
cut costs in both system

768 video system.

Most importantly, the
new COMPAQ ProLinea

PCs are backed not only

by the assurance of the COMPAQ name, but by

CompaqCare, our new to offer them for.

gram. Which includes a free, one-year, on-site\* limited warranty, and a

host of other services.

And to go along with

this new line of PCs, there's a whole new line of places you can find them. Give us a call for more details.

In the U.S., call us at 1-800-345-1518, ext. 215, and in Canada, just call

1-800-263-5868, ext. 215.

We think you'll be pleasantly surprised at exactly how much the

by how little we're able

exactly how much the
COMPAQ ProLinea PCs
have to offer.
And equally surprised

1

All in all, the COMPAQ ProLinea 3/25zz PC sizes up quite encely. At a mere 12.6" x 14.9" x 3.5; st) one of the smallest foresteets in the inclusion.



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Affordable prices aren't limited to our new products. In fact, we've lowered suggested list prices by up to 40% on COMPAQ hardware. And even more on our list of options.

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10 \* DESKPRO 486/16M Model
10 \* DESKPRO 486/13M

PORTABLE 486c Model 120

\* PORTABLE 486c Model 210
SLT 386s/20 Model 60 \* SLT
386s/20 Model 60 \* LTE Lite/2
20 Model 40 \* LTE Lite/2
Model 60 \* LTE Lite/20 Model
84 \* LTE Lite/25 Model 60 \*

DESKPRO 50M Model 340

LTE Lite/25 Model 84 ¢ LTE Lite/25 Model J20 ¢ LTE 386s/ 20 Model 30 ¢ LTD 386s/20 Model 60 ¢ LTE 386s/20 Model 84

SYSTEMPRO/LT Model 486-SX/25-210 \* SYSTEMPRO/LT Model 486SX/25 510 \* SYS-TEMPRO/LT Model 486SX/25 680 \* SYSTEMPRO/LT Model 486/33-210 \* SYSTEMPRO/LT Model 486/33-510 \* SYSTEMPRO/LT MODEL 486/33-1020 \* SYSTEMPRO 486/33-350 \* SYS-TEMPRO 486/33-340 \* SYS-TEMPRO 486/33-340 \* SYS-TEMPRO 486/33-200

40-Megabyte Hard Drive 4 60-Megabyte Hard Drive # 84-Megabyte Hard Drive # 120-Megabyte Hard Drive 4 210-Megabyte Hard Drive 4 340-Megabyte Hard Drive 4 \$10-Megabyte Hard Drive ¢ 240-Megabyte Drive Array Pair 6 420-Megabyte Drive Array Pair 6 680-Megabyte Drive Array Pair 4 1.02-GB Drive" Array Pair ¢ 1-Megabyte Mem ory Module 4 2-Megabyte Memory Module 4 4-Megabyte Memory Module 4 8-Megabyte Memory Module # 2-Megabyte Single-Socket Memory Module 4. 8-Megabyte Single-Socket Memory Module # 32-Megabyte Dual-Socket Memory Module 4 1.3-GB Differential Interface Hard Drive....



#### ADVANCED TECHNOLOGY

# Systems for oil spills no longer crude

Communications ships and computers may help speed cleanups of future oil spills

BY KIM S. NASH

Checking on checks

a Neural network technology took another step into the real world recently when call world recently when City, Califf, announced a product that was neural network chips to help verify work they have been considered to the control and bank sectors and, therefore said, in the first announced previous said, in the first announced to the control and the control and bank sectors and, therefore said, in the first announced with the control and Checking on checks

TECH TALK

#### Evolving

we Neural network and fuzzy logic technologies are ready to emerge, according to a re-cent study by Market Intelli-gence Research Corp. (MIRC) in Mountain View, Calif. The two technologies, which impose efforts to simu ich involve efforts to sim see numan ressoning, have seen in the infancy stage. fowever, the worldwide narket is ready to soar, going rom an estimated \$580.4 million this year to a projected 2.5 billion in 1994 and \$9.9 illion in 1998. Most of the tion in 1998, Most of the sural network and fuzzy gic markets today are made to of development tools and stomer applications, MIRC stomer applications. M id much of the market rowth will come in the use of eural networks for financial and industrial applications.

Officeless office s Touting the end of the tra-litional office, Olivetti Re-search Laboratory in Cam-oridge, England, has developed what it calls the active Badge, a clip-on badge about the size of a standard ared pulses to wall-mount d sensors throughout a cor any. In this way, a compu-r system can route phone and messages to the or workstation nea



#### All systems on deck



# WHAT, EXACTLY, IS ACCEPTABLE RISK?

Last night you powered down a cholesterol-rich pasta with cream sauce. This morning you jaywalked across a busy four-lane street, and next weekend you're going to trust some nineteen-year-old who tells you there's no way the bungee cord can break.

Next to that, choosing new computer equipment is merely career threatening.

We don't think it should be quite so risky. Which explains the existence of NetWare. Novell's networking software that unites such strange bedfellows as IBM and Sun; Oracle and Microsoft.

NetWare not only preserves investments you've made, it'll accommodate whatever decisions you make next year. Our eighth generation products are the result of alliances we've built with over 2500 software, hardware and systems vendors, who've designed and tested thousands of their products to work with ours.

Which means you really only have to ask one question to make your next risk an acceptable one. "Does it run with NetWare?"



The Past, Present, and Future of Network Computing.

#### EDITORIAL

#### In memoriam

am a competitive cat."

With those words, spoken the first time With those words, spoken the first time I met and interviewed him more than eight years ago, MCI's Bill McGowan defined his own essence. He was not just any cat, but a Cheshire cat, whose grin remains after the rest of the image has faded.

the image has faded. He was an easy interview because you could tell so much about him before the serious questions even started. When I called MCI to set up the interview, I asked for the chairman's office, expecting an administrative assistant to answer. "Wouldn't you rather speak with me?" asked the voice. "Who! tabe?" I demanded. "It's Bill McGowan. Now who the hell is this?" He was not a conventional chairman of a billion oblate companion.

The first thing I noticed is that he smoked too much, and maybe did some other things a little with the control of the man. He was the part the roy of the man. He was the control of the man. He was the control of the man. He was the control of the man that the control of the

back in his chair, then Itashed the grin.

A few years later I saw him again, this time to accept an award for MCI's first-place finish in the Computernord Premier 100 rankings. Knowing he'd had a heart transplant, we directed him to the elevator. Again the grin. "Watch this," he said, and literally bounded up the staircase two

flights.

During the award presentation, the grin came and went as he reflected on the pride he felt in his staff, his words choked with emotion. More irony, as he was not known as a CEO who engendered much fealty outside the senior management ranks. Yet the emotion was very real.

"One time I took a look at the federal budget and decided that Washington was the place for me," he said at another interview. "I couldn't be-

nie, ine saud at anounter interview. 1. Coducin (De-beeve how much money there was there."
In reality, he was there to scrutinise AT&T's public rate fillings and to push the Justice Depart-ment to allow his company to compete for long-distance business. He sued that regulated monop-oly on artitrust grounds and won a huge judgment while doing more than any other individual to bring to consumers the economic benefits of a competitive, networked environment.

To those of us he brushed up against along the

To those of us he prusaned up against acong use way, he will remain one of the most compelling, enigmatic and certainly enjoyable people in a business that all too often is characterized by ba-nal and one-dimensional leaders. McGowan was indeed a cat who lived all of his nine lives with verve, even stealing an extra one along the way.

Bell Labour

Bill Laberis. Editor in chief



#### LETTERS TO THE EDITOR

the encouragement of early velopment and public disclor

of new technology. Although, doubtlessly, some inventions may never have occurred in the absence of such a system, that is

#### Congress created patents for a reason

I read Richard Stallman's views on why he would abolish soft-ware patents [Viewpoint, CW, June 1]. Although I believe I un-derstand his frustration with the patent system, simply doing Stallman is incorrect in his a sumption that "society is sup posed to gain through the disci-sure of techniques that wou otherwise never be available. The underlying policy suppor-ing patents (unlike the mainta nance of trade secreta) include

Many of those opposed to pat-ents fail to acknowledge their constitutional basis. The fram-ers specifically provided that "Congress shall have power... to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive rights to their respective writings and dis-coveries." Indeed, one of the

first acts ever of Congress was the creation of a patent system. man is correct that, in Stallman is correct that, in the U.S. legal system, patents are intended as a bargain be-tween society and individuals: In return for disclosing to the public

Your sidebar article on major Unix wendors, "The lineup" [CW, May 4], aptly noted that one of Data General's strengths is the multiprocess-ing capability of its products, which is provided by Motoro-la's 88000 family of RISC mi-

lowever, the sidebar er-ously stated that the Motorola microprocessors DG uses are "not slated for ad-

vanced development." This is ply not true. Motorola's 88000 pro-

abtence or such a system, usu as not its only goal. Furthermore, by striving to avoid the unauthorized use of other people's technology, soft-ware designers are urged to be creative and develop new inven-tions, which is another goal of an invention previously unknown, the inventor receives an exclusive right to exclude others

Setting Motorola's record straight

RISC mice

#### Industry should fight FBI proposal

Thank you for printing the Vi point column by FBI Chief I liam S. Sessions ["Wiretap p posal inn't radical," CW, is 25]. Law enforcement's commitment discrepand for the ous threat to our fre

private busine apy on its citizens. is in the best position to e ability and maximize seco

ucts continue to set price/ COMPUTERWORLD



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# Lofty ideas don't build systems



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purpose registers that change to show the results of executed instructions.

Micro Focus 370 Assembler with ANIMATOR/370 also offers a Probe facility that allows programmers to quickly dissect a 370 Assembler Instruction. All screen dumps can be displayed in one or two windows with new DUMP utilities and a complete list of 370 Assembler instructions (sorted by mnemonic name) is included in ANIMATOR/3705 new online reference system. In addition, a built-in hex adder/converter allows for quick calculation of index/base/displacement addresses or a

Call 800-872-6265 and learn how Micro Focus 370 Assembler with ANIMATOR/370 will change the way you look at Assembler applications and discover: "A Better Wey of Programming."

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# **DESKTOP COMPUTING**

# Claris unveils first Windows package

SANTA CLARA, Calif. — Apple Computer, Inc. software subsid-iary Claris Corp. finally decided that if you can't beat 'em, join 'em, and has announced its first

Contact Manager

#### Lotus targets Windows spreadsheet market with SmartPak enhancement

BY ROSEMARY HAMILTON

BOSTON — Lotus Develop-ment Corp. hopes to shift into high gear in the Microsoft Corp. Windows spreadsheet market, and the introduction list week of its SmartPak program enhance-ment for Release 1.1 is an exam-ple of how the company plans to will the eff.

# Need an ISPF-style editor for your PC?

SPP/2 ofters the same familiar environment, command varucture and editing capabilities as the mainframe. It provides full 3270 compatibility, with NEW-LINE, SPT and SPT RESET Exps. It even displays the same status indicators at the bottom of the screen. And, as OSY2, SPF/2 uses REXX as its macro language—75 SREDIT subcommands provide the interface.

ISNED/19 successions province to conjugate the succession of the province to the conjugate the conju

SPF/2 retails for \$295. Special Multi-User Licenses are available directly from CTC for companies needing multiple copies. For details, call \$10-\$21-\$900.



# Not all e-mail system the same level of fr

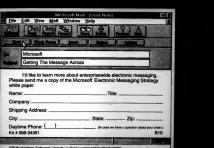


Some e-mail systems can leave you with nowhere to go.

The e-mail system you select today directly impacts your company's future. Why? Because e-mail is no longer just a simple alternative to the interoffice paper memo. It is a strategic business tool. And the foundation for a new generation of powerful messaging-enabled applications.

These applications are revolutionizing mission-critical tasks such as order processing, vendor communications, customer service, and much more. Choose the right e-mail system and the advantage is yours. Choose the wrong system, and the advantage in the future could belong to your competitor.

At Microsoft, we believe that selecting the right e-mail system is one of the most important long-term decisions a business can make today. As the leading developer of PC soft-



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And see how you can take your business to new heights.



# Pilot's LightShip 3.01: Powerful, complex

Technology Analysis — A roundup of expert opinions about new products. Summaries written by new

ightShip 3.01, the latest version of Pilot Executive Software's personal computer-based executive inoration system, lets users develop powerful applications that access data from many sources, reviewers said.

mer's perspective, but end users will find that it provides an easy and flexiale way to examine data.

Power of applications: The program has impressive, flexible drilllown capabilities for examining data it high or low levels.

Date termet support: LightShip relies on Dynamic Data Exchange links to access data. Users who wish to accor information in ASCII format or PC or SQL databases will need the LightShip Lens add-in rackage.

e documentation leaves room for aprovement. Users may frequently and themselves switching back and orth between manuals. mloor LightShip costs \$795; the

Inhuo: LightShip costs \$795; ti ens package is an extra \$195. R iewers said it is not for the casu ser, but those who learn it will have owerful data access tool. Pilot's LightShip 3.01

Reviews	Sase of use	Power of applications	Data format support	Documentation	Value	Overall
LAN These GAVE	Difficult to	Very powerful total	Supports DDE	Contains	, NC	Print std
DINES UN	Not exhalthe- ben tool	Powerful and complex	Improvior, but mugh SQL connectivity	Fairly complete	Best for large applications	Powerful, inter- rating features
32	Superior	Trillest applications	Advantages und dis- minutages in DOS	7 NC	Require could contactes	Highly problem
PC West 8/3/95	Applications easy to use	Full program- ming capabilities	Goes for beyond previous version	NC	NC	Improved
PC Market	Quick data links	Dell-dron march- ing improved	Separa DDB and DLLa	HC	MC	Mer
Usors						
Stree Tartarone, ATAT Bell Laboratories		===	L	- 1	L	Quick prototype applications
Joseffer Gold, Tenne land woman, Inc.						Easy to create . Sweet and
Ketth Burtleon, Kerilloh Associates		- #	1.	-	1.	Small learning curve
San Wilms,	1000	100	-	-	25	Nobber -

Vendor background information

Pilot Executive Software in a privately held company with approximately 264 employees. It is based in Boston and has six offices in the U.S. The company does not release revenue figures.

Pliot respon

Michael Donding, director of marketing comm

inse of uses We designed the product for power sers to build applications that can grow. The uprout investment in the learning curve will pay for nelf many times over. But we will also continue to shance the ease of use in upcoming releases.

# Forest and Trees 2.0: Flexible, easy to use

Channel Computing's Forest and Trees 2.0 for Windows

Byes 6/8	Gives less of help	Live data	Bread range	NC	Lent espenie	, Versuite
Network Companing 1/92	Easy to develop	Corn most understand flore construences	Range of databases	NC	NC	Excellent
PC World 5/92	Easy to get lost	Heating consider queries	MC	Shorton	NC	Capable
Askworld K/19/91	Control over format details	Adds new programmability	Large marrier	NC	Worth a look	Outstanding
Users						
Elekard Shorbin, Elleke Industries		-	-	l.		Graha data true many negros
lady Wheeler, ichlumberger Hell Services		l.	- 11	-	2	Wery easy for end mees
Lesson Carrière, Nanoco Production Co.		1		L	-	Needs runtime
Fic Koelsch, intersection Inc	- 1	- 25	- 11		11	Zeal-time links impressive
Analyst						
Math Pladestreaks, Performance Computing, Inc.				. h		Hay to use

Good Far Prior Reviews evaluations are excepts from articles. Refer to actual reviews the details. Ours and analysis parings are no britishness nervey. NO. No commond.

#### Vendor background information

Dannel Computing, Inc. is a private, venturesacked company based in Newmarket, N.H. The 40-employee company has approximate early revenue of \$5 million. It was bounded in 1988.

#### Channel responds

Base of use: No matter what product you use, there are certain things you have to understand about SQL or where your data is located. In the next revision, we're moving cautiously away from that but without losing functionality. We'll have something out before the end of the ware. hannel Computing, Inc.

Rocent and Trees Vernie
2.0 for Windows decisis
support software provide
in which so data in a varie
of formats. Reviewers found that it
product offers relatively easy data a
cass. Revest and Trees can monit
data in the background and sound
alarm when certain conditions a

Euse of uses Reviewers said Forest and Trees 2.0 is fairly easy to use without extensive preparation. The interface is an electronic dashboard that gives a summary view of data. However, in order to get the most out of the product, users will need to know some details about SQL and where information is stored.

and Trees is flexible, allowing users to write and execute ad hoc SQL queres. Byte warned that a poorly contructed query can degrade the network's performance.

package supports access to a wide variety of personal computer spreadsheets and databases. Optional support is available for mainframe databases from several vendors.

als and sample programs are include Values At \$495, Forest and Trees an excellent value, reviewers said, is less expensive than many executi



The new HP PaintJet XL300 k

At last. A printer with fantastic color and a brilliantly low price. \$3,495.





Vivid color has never been so affordable. Hewlett-Packard introduces the PaintLet XL300 inkjet printer. Now you can add a 300 dpi color printer to your system for the remarkably low price of just \$3,495.

Just 83,485.
The PaintJet XL200 has HP Laser-Jet printer compatibility built right in The same typefaces. The same page formatting, It also has PC/Macintosh auto-switching, so users in a mixed environment can share. And, just like a Laserlet, the PaintJet XL200 becomes network-ready with optional HP JetDirect interface cards.

Get laser-quality text and graphics

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Now that there's a printer as practical as the Paintlet XL300, maybe it's time you took the plunge into color. Call 1-800-752-0900, Ext. 3159 for a free print sample and the name of the authorized HP dealer nearest you!

HEWLETT PACKARD

WINDOWS VIEW lesse Berst

#### For GUIs, check what's up front

ining otential, implies that all improvements of the programs can do in help a PC predict a chamb terminal. Today's prodict, however, go far beyond this basic notion. They help you put a graphical or conto your aging mainframe applications.

'ciona. In many cases, a frontware nobstion is the best way to leverage legacy systems. If you can make your host applications easier to use and more accessible — and with frontware you usually can— then you may be able to satisfy your users' request without starting from scratch. And that means you may be able to do to do to the week what would otherwise take used when you may be able to do make the weeks what would otherwise take

A GUI front end can greatly simplify the use of multiple host screens. What a

ODAY'S "terminal emulation" programs go far beyond helping a PC pretend it's a dumb

terminal.

nore, you can create a common look for fiferent host applications, thereby re-cring training and support. A GUI also makes it easier to transl tes and share data. For instance, you hight assemble a report from several fiferent host sources in just a few mo-ments. Then you could cut the figures and paste them into a Microsoft Windon weakhost or ward processors.

d paste them into a Microson, was readsheet or word processor.

A large Pacific Northwest bospital is transformed its older 3270-based pa-ent history application thanks to ontware. The new Wandows front end that was the processor of the pro-mits and processor of the pro-tes of the processor of the pro-tes of the processor of the pro-tes of the pro-tes of the processor of the pro-tes o

funtware. The new Windows front end lets doctors with no computer training access patient information and lab reports by pointing and clicking on buttons. Likewise, a large airline has used frontware to modernize its receivation system. And several large casualty in-surance companies have used connecti-ity products to revitalize and integrate their claims processing and policy status

The growing interest in frontware has made for a highly competitive market. You can find excellent connectivity prod-ucts from Digital Communications Asso-ciates and IBM.

wense.
though Attachmate makes an exnt product, my personal favorite
now is Rumba. Unlike many conwity products, Rumba was not retro
to Windows. Wall Duta built in
lows support from the ground up.
to more, the company used a modurehitecture that makes it easy to alid

Rumba's most noteworthy schiev is the way it helps you create seas graphical front ends for host prog Rumba makes this job easier w special tools that work together v

special tools that work together will products such as Asymetric's ToolB Easel and Microsoft's Visual Basic. I stance, Rumba is now shipping a spe set of controls that let you use Visua sic to paint the screens and add fund ality. Then you can merge these scr-effortlessly with Rumba's connective

It's impressive stuff.

So if you're still thinking of the frontware category in terms of "termine ensulation," I counsel you to take another look. Some of these products are now set up to help you give host apps a new lesse on life with a GUI front end.

rst is the publisher of Redmond, Whuh, based findows Watcher" newsletter, a mosthly brief rvice for software executives and corporate

# Little folks wield new clout in PC market

Survey shows a growing percentage of PCs are being sold for home and small business use

BY CAROL HILDEBRAND

Increasing competition for large corporate accounts, in concert with an upowing in employees bringing work home, has highlighted the growing importance of small business and work-at-home nur-lexts, a recent study found.

Raymond Boggs, director of small business and hame office research at IBS Strategic Decisions in Norwell, Mans., and that although the corporate customer

rill remain the paramount sell for person-computer vendors, increased competi-tiveness will force them to pay more st-eather to accordary markets as well.

The survey points to a sharp uptick in computer sales among small businesses and home offices. Assumal growth in those arrises in 16% and 27%, respectively, respectively.

#### An open system so powerful, other servers will be fuming.

Our competitions around gaining to be happy schoot this. But you will. The new YOFERevers VIV downs not some pretty associate makes the charty schooling unique core performance and the charty schooling unique consequence of the second pretty associated as the chart of the second pretty associated as the chart of the second pretty as the chart of the second pretty as the second pretty

applies also meeded to run most basinesses. Of course, when it comes to service and support, we're not blowing anode. For starters, we consider a one-year warranty, And year can always count on the unparalleled support of 18M—24 bours a day, 350 days a year. Call year 18M marketing representative Call year 18M marketing represen



terfaces, as well as Apple Computer, line: 8 System 7.0 for the Macristoth, are more appealing to buyers who are relatively sere to Fourier St. And third, the current Fourier St. And third, the current Fourier St. Posice were considered and the state of the state o

\$2,000. However, Boggs emphasized that these activities are in addition to wooing the corporate customer. "That market is still vitally important, and they are not going to give it up just because another segment is moving up," he said.

#### The new POWERserver 970.

Model	TPC-A Local Throughput	Price Performance
POWERserver 970	100 9 tpsA	\$12,400 per tosA
HP** 9000 Senes 870S/100	74.5 tpsA	\$21,057 per tosA
DECsystem*5500	21.1 tpsA	\$18,101 per tpsA

# HP drive measures in at 1.3 in. Oracle takes on Borland

SAN FRANCISCO - Here SAN FRANCISCO — Rewlett-Packard Co. Inst week wrote the litest installment of the "Amas-ing Shrinking Hard Drive" by in-troducing a 13-in, de-vice to be made by Citizen Watch Co. for use in subnotebook computers and other

The 21.4M-byte Kittyhawk Personal Storage Module is the imallest drive intro-fuced to date, pushing asst the 1.8-in. form actor that is only about

But HP said at a press confer ce here last week that Citizen ence here last week that Citizen will not start volume production until September. That leaves a window for other vendors to un-veil similar products. HP said it will price Kitty-hawk at \$250 for volume OEM

95 palmtop computer, is expect-ed to be an early customer. The company is currently selling evaluation units for \$450. NCR Corp., the computer arm of

on of HP's miniature hard

AT&T, is also expected to be an er, an analyst at Hambrecht & early customer. Quist, Inc. in Sun Francisco.

Bruce Spenner, general man"However, with all the different

arly customer.

Bruce Spenner, general manger of HP'a disk drive division,
did HP is not focusing Kittywit marketing efforts on the
xebook market, where larger
pucity drives that cost less per
gabyte are already the norm.

Rather, he said, HP hopes to sell the product on an OEM basis to vendors of paintop and other nen and printers. nner said HP hopes to

supplant vendors of more costly solid-state credit card-style mem-ory devices. Industry analysts noted that with personal computers emerging in various shapes and sizes, there is potential for niche markets for different

coming faster than the markets are develop-ing," noted Todd Bak-

"However, with an the unerent varieties of portables, ranging from subnotebooks to paintops to pen-based systems, and with each one having vertical mar-kets, there will be requirements

#### LotusWorks adds QuickStart apps

B Symmetry Software Corp. said it has li-censed HyperEngine, its stack-access technol-qy, to Lotus, Claris Corp. and Wordstar International, Inc. The technology will be used to create on line Help. It allows develop-ers to baid access to stacks in the familiar form of the Apple Computer, Inc. Macintosh Hy-perCard Stacks.

#### in client/server Paradox BY MARK HALPER

REDWOOD CITY, Calif. — Ora-cle Systems Corp. hopes to get a leg up on Borland International, Loc. in the race to provide seam-less client/server distabase com-puting for Borland's Parackor personal computer distabase. Oracle is teaming up with a New Vart-based vendor of a Paradox insocked to older a Paradox along the product that includes embedded SQL commands for linking with Oracle's back-end database survers. SDE Existence.

linking with Oracle's back-end database server, TSR Systems Ltd. in Port Jefferson, N.Y., makees a compiled version of Paradox 3.5 that both Oracle and TSR said runs isster than Borland's 3.5 Borland's 3.5 in based on interpreted rather than compiled code, a trait providing allower performance and greater ease of use for end users. developers of use for end users, developers

said. TSR markets its compiled version, called Palcon, to applications developers. The combined Oracle/TSR product, code-named Rampal, will allow developers to design applications that do not require additions that the requirement of the

nouncement that had been planned for Borkurf's database developers conference in Palm Springs, Calif., two weeks ago.

Kim Rowden, director of strategy and planning at Oracle's desktop products division. On the California Puchs, TSR's mensaging director, declined to say when the product will be available. REDWOOD CITY, Calif. - Ora-

Oracle to do marketing
The pending agreement between the two companies calls
for Oracle to market Rampal.
Both Rousdes and Puch and they
will whet together to develop a
based on Parton 4.0. a faster
and richer version of 3.5 that
Bortand plans to ship this summer (CW, June 1).
A Microsoft Corp. Windowsbased product in also expected to
be released. Bortand and it plans
were the product of the product of the
released. Bortand and it plans
of Partons by the end of the summer.

#### TrueType and HP's DeskJet WINDOWS

Part of a series of Windows 3.1 user tips pro-vided by Microsoft Corp. and based on ques-tions commonly asked of Microsoft custom-er support personnel.



Q Can I use TrueType fonts with m Hewlett-Packard Co. Deak.h Committees a committee the committee of the committee of

What should I do when I receive the "Inadequate DPMI served" error amongsage. There are two possible reasons for this error.

There are two possible reasons for this error.

There are two possible reasons for this error.

WHINSS.EXE are from different versions of Wadows (when one is from the possible of the possible of the control of the possible of the possible of the dates on those filest. They are boated in the STSTEM andericetary of your WINDUM'S director, it is possible that an older version of these may be in the pash of the WINDUM'S directory, search the estimation of the this possible of the WINDUM'S directory, search the estimation of the WINDUM'S directory of the windum's direc

seaton.

This error message can also appear when your system means configuration settings (sometimes referred to as CMOS setting don't match the amount of memory the system actually has. The wyou change the settings depends on the type of hardware you have the settings depends on the type of hardware you have for more information about these settings, see your hardware do:

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# **WORKGROUP COMPUTING**

LANs . SERVERS . SOFTWARE FOR GROUPS

## UPS offers net backup

#### BY ELISABETH HORWITT

LIBERTYVILLE, III. — An us interruptible power suppl (UPS) recently introduced h Onesec Corp. is said to provid data center-quality power per tection to critical LAN device and reclimations.

oneac a to serves of UFsaid to isolate local-area netwices from power disbances — anything from mi
data loss to wear and tear on
printer drive to total burnout
LAN card or workstati

cources reported.

Grounding a power surge, as onne protection devices do, leaves open the possibility that the surge will choose to ground itself over the LAN cable rather than the local ground, according to Onesc spokessan David Fend. In contrast, On Series reflects the power surge back, so it

#### .. .. ..

More offerefable
Once has been providing a nimitar UPS for data centers for the post few years, but not at a spire usual time year. But the years were the years with the post of the years with the post of the years with the years of the LAN for complete protection. Prices vary from any proximately \$100 to protect: small habb to \$1,790 for: 1.88VA UPS that can protect large server configurations and large server configurations.

# Epoch shifts to multiplatform focus

Storage vendor unbundling software products for sale through a variety of third parties

BY MARYFRAN JOHNSON

WESTBORO, Mass. — The importance of turnkey hardware systems is waning at Epoch Systems, Inc., as the network stor-

age weater begins delivering its unbundled software products for sale on multivendor platforms. This week, Epoch will announce a reseller deal with Digital Equipment Corp. that marks the first of many new third-party

lationships with major system of workstation vendors. "Our strategic evolution is to interest our software in different chages, on different platrms," said Kent Godfrey vice.

resident of marketing it Epoch. "Software is where the mone; comes from."

Over the past five

has defity carved itself a niche in the Unix workstation market. Epoch's speciality is managing network data — multiple gipabytes of it — on specialized storagservers that combine cache memory and magnetic and optical discs in a high-capacity, on-line storage system.

acs in a high-capacity, o-line storage system. Its software offerge span the range of its management products from hierarchical orage management and autonatic migram and backup to on-

hiving, direcovery
rary mant.
r view, in
d, in the
ew," said
Prenident
Robert,
me has to
combile for

manage it." Epoch's Re
Although this the IS point of
latest move toward selling that
software on other platforms will
eventually erase the need to buy

them. The company does not manufacture the Epoch Data Servers but acts as a systems integrator for parts from Exabyte Corp., Heart Parksets

crosystems, Inc.

The first step along Epoch's new path was taken in April with the signing of an OEM alliance

il which will integrate Epoci e data management software w r Storage Tek's ACS 4400 tape

> in DEC's case, the reselled deal will provide the Epoch-Data Server to Ultrix contoner buying customized application from DEC. While the Epoch product could end up competing with DEC's new StorageServe 100, company officials said the machines will be pitched at dis

If Epoch is successful in the strategic shift, its current competitors in the server market w

Some industry and lysts have called this phenomenon "the No well, Inc.'s successful shift away from nelling turnley hardware systems to network operating system software.

ating system software. "Epoch is clear! "Epoch is clear! and consciously on the Novell path," on Kathryn Hilton, an ans lyst at Computer Instelligence/Inflocorp in San to Clears, Califf Novell is in fact, one of the 1993, target platforms for Epoch's backup software.

Company officials said.

Current contoners
seem receptive to the
idea of running Epoch
software on a variety or
obstiners.

"I applied this new

CV Chart Michael States



By the end of this week Computerworld readers will have spent over \$37.3 Billion on Information Technology this year – representing nearly half of all IT spending to date in 1992.

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can access the data at all.



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MIPS. And since System 3600 connects to your current computing environment, you can preserve your investment in proprietary systems while you move toward a more flexible, open future.

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# **Tools unite customer services**

SANTA CLARA, Calif. Aurum Software, Inc. is taking

to customers.

According to Lisa Ganson, di-rector of marketing at Aurum,

the strategy is to give the area of customer support the same ca-pubility to share information as the more traditional areas of fi-

ately being able to update the same database," she said. The applications reside on the following companies' Unit-based relational databases: Ora-cle Corp., Sybase Corp., Unity Corp. and Informix Corp., Writ-

proach: "This is going to be tway database applications are done," she said. "Users want front-end applications for the PC, but the back end is moving increasingly toward Unix serv-ers. This is going to be the norm for cross-platform operating sys-tem and database issues."

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## **Epoch** eyes resellers

irection," eaid Willy Veta enior productivity engineer kneywell Commercial Fi systems in Coon Rapids, Mi which manufactures navige systems and stores critical it scal data on an Epoch server. "If I can put the softw crom Epoch on my SPARC ers 690MP, I get the option restins a second Enooth

# Switch to LAN the right plan

By deserting centralized computing, MM&D more responsive to clients

BY MICHAEL FITZGERALD

CHICAGO - Information sys-CHICAGO — Information sys-tems directors are not usually cast as rebels with a cause, but one such executive drove Miller Mason & Dickenson (MM&D) to abandon centralized computing in favor of a mission-

MM&D's spread of chnology, moving om a cluster of three ting firm.
"The No. 1 thing for

is we're more re-consive to our client ue," Sandusky said, oking back on the first

centralized. "There was sensitivity to ling away from the fold while il interacting with Aon on a by basis," Sandusky said. "We re a group that was there to esse the potential for a decen-lized environment, and in the reframe around 1989, that as big risk."

He also said MM&D co ues to tie into Aon's mainfr ON SITE

## VisionQuest on agenda at business meetings

## UPS offers net backup

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Lotus Notes is an innovative, workgroup computing environ

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variety of applications that facilitate information sharing can be quickly developed and deployed to multiple users at multiple sites. Regardless of what networks, applications and operating systems are in place.

with Notes, both IT professionals and users can work together to create applications that solve very specific problems. In fact, right now there are small and large companies using Notes for sales lead tracking, product planning, brainstorming, account management, project tracking, call reporting, quality management and a whole lot more.

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With Notes we now have a quicker, more efficient way of delivering some incredibly useful applications to our people. Por example, we erected a customer information and profile application that was up and running in less than two months. Now that's first

year. Nother down the road, ourse envisioning a model that serves on a virtual town sensing for everyone in the organization. When no malter what any one for everyone in the constitution of the constitution of the resource of the road of the organization behind us and avoidable to us. Which means at IT prefessionals, we will be in a much better position to help our compensary realize its business goods. And to bring a better level of service to our customers!

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All of which makes Lotus Notes much more than a single application. It's an environment that's extremely flexible. Plus, it runs on the most popular networks such as Novell," IBM," Microsoft" DEC" and Banyan." And in

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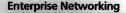
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# **ENTERPRISE NETWORKING**

INTERNETWORKING . SERVICES . NET MANAGEMENT

# John Hancock meets connectivity challenge

BY ELISABETH HORWITT

where one workstation and one network hink gives you access to any and all corporation informa-tion to which you legally have right of access," said Mark Roy, a network consultant at the firm. Unlike some corporations, bowever, John Hancock is not trying to reach this nirvana by

An internal task force is eeting regularly to examine in itali all the protocols now used ad all that could potentially be



# Fight over E-mail net opens

# Third-party WANs to fit Novell routers

BY JOANIE M. WEXLER

in all the time, noting that Baxter has some 9,000 to 10,000 employee

flects at least one page on a phone bill, resulting in about 10,000 pages per month, ac-

# Bills: Going, going, gone electronic

BY ELLIS BOOKER

DEERFIELD, III. -- An es

That paper can pile up as cousands of sheets monthly, sch requiring manual input into

erprise systems at Group, Inc. in Stamford,

By comparison, 811 secuse enable users to work with the phone bill data more easily because users will be able to "map some or all of the standard 811 fields to data fields in their applications," Taylor exhibitor.

Sileo noted that when White ains, N.Y.-based Prodigy end-its policy of unlimited elec-

Local loop to get new

NORWOOD, Mass. — Telco Systems, Inc.'s Fiber Optics Di-vision eartier this menth began describing plans for HyperNet, an integrated family of fiber-op-ic transport and distribution products for the local loop net-

"We view the [HyperNet] as a platform for providing multiple services to multiple customers," said Paul D. Lazay, Telco Sys-tems' president and chief execu-

for Prodigy maintains the Prodi-gy service a distinctive graphical user interface and ease of use. In addition to "shareware" software titles in 16 product cat-egories, ZdfiNet for Prodigy will provide news and commentary, hardware and software buying and technical advice, and access to a variety of ZaffNet bulletin

The software resides both on IBM and compatible mainfrances and on personal computers running Microsoft Corp. Windows. In May, Ameritech Information Systems said it had signed a non-exclusive distributor agreement with TSI to provide EDI billing to customers of Ameritech phone companies.

cording to Browning.

Batter's 1989 strategic plan
called for the elimination of peper between itself and its trading
partners. Bewing, who declined to provide details, did reweal that this project began in
earment last summer and has already converted a substantial
number of Baxter suppliers to applications.

Until now, two of those applications — one tracking phone use, the other handling billing and accounting — have been fed

# Prodigy adds software downloading

ware titles and bulletin ds maintained by Ziff Desk-

computers.

Analysis noted that the service carries a monthly fee on top of Prodigy's regular \$12.95 monthly subscription fee and hourly connect charges — a first for Prodigy, which has always emphasised its flat-rate pricing

"In my opinion, they want to get more revenue per subscriber but know they can't charge for

dealt with using passive MAUs. We need more intelligent de-

said Lorraine Sileo, editor of the "IDP Report," a weekly news-letter in Wilton, Conn.

from a small group of subscrib-ers. She said that she expects Prodigy to launch other "value-added" services soon. Company officials said ZiffNet

ic-mail messages last year, it ared a storm of criticism

IBM and Unix hosts, as well as Novel, Inc. servers, Roy said. John Hancock has already re-jected the idea of migrating all users to Transmission Control Protocol/Internet Protocol (TCP/IP), which companies with similar problems have adopted as the nearest thing to a com-servially viable networking

viable networking

Not all positives
The problem with wholesale conversion to TCP/IP — or any common networking protocol — is that it often means settling for less functionality and lower per-formance, Roy said. "After all, IBM systems are designed to use SNA and DEC hosts to use DEC-

# fiber offering BY ELLIS BOOKER

upgrading the local loop portion of their networks. About 60% of Telco Systems 1991 revenue came from fiber transmission systems; the remainder, from its Network Access Division, came from multi-plearer and network management systems. The Hyperlynx multiplearer will use a 600dd bifyinc, but, with the systems of the systems will use a 60dd bifyinc, but, with the systems of the sy to a variety
boards.

Monthly ZiffNet access costs
\$14.95 per member per month
for three boars of use. Additional
ZiffNet use will be billed at \$6
per hour, charged in per-minute

# Hancock meets challenge

cated on 58 Token Ring net-works located in the six office buildings that make up John Han-cock headquarters. The other 400 users are on Ethernet net-

John Hancock recently awarded a contract under which Bytex will implement 40 of its Series 7700 Intelligent Switching Habos as the basis for inter-connecting user workstations to LANs throughout hesdquarters. The ludw will replace more than 100 multitation access units on the Jahn Hancock network.

The reason for doing this, so the series of the contract under the contract of the contract of the contract under the contract of the contract under the contract of the contract under the contract of the contract under the contrac

we nece more intengent of vices." Welfileet routers will support a variety of client/server connec-tions between the Ethernest and Token Ring LANs, Roy said. For example, PC users on a Token Ring will be able to access Digital Equipment Corp. VAX boots on Ethernest. Still missing, however, is a method for PCs on an Ethernet LAN to access IBM bosts "without putting too many boses in between," Roy said.

TCP/IP could get a VT 100 ter-



# 950-

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Lotus' 1-2-3" for Wandows	Application Load	21.5	134.8	6.3
Ami Pro* 20 for Windows	Print	18.0	130.0	6.1
WordPerfect 5.1 for Windows	Spelicheck	12.7	264	21



If you're like most people, you probably use applications for the Microsoft Windows' operating system. But if you happen to get the standard configuration PS/2\* 56 or 57 with OS/2\* 20 these days, you might notice that your programs run at substandard speeds.

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sation software creates on a workstation.

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FarSite can be licensed for \$995 per

DataBeam 3191 Nicholasville Road, Suite 600 Lexington, Ky. 40503 (606) 245-3500

Brightwork Development, Inc. has started shipping NET remote+ for Windows. Designed to run under a Microsoft Corp.'s Windows environment, NET monze+ for Windows in envork support and a diagnostics tool for Novel, Inc. NetWare claimst. The product is a Windows based application that provides personal control of the Network of the Network Control of a vicinity of the Network of Network Control of a vicinity of the Network of Ne

sonal computer-to-PC connections of plications across a local-area network. The product costs \$495. Brightwork Development 766 Shrewabury Ave. Jerral Center West Tinton Falls, N.J. 07724 (908) 530 0440

#### Network management

Hughes LAN Systems has introduced

network management software,
Monet S.O incorporates the standardbased Mostl user interface and X Window
System protocol. This release offers a dynamic isom capability that customizes isome responsing graphically to reside a alarma. Monet S.O also uses the compasion of the compation of the compation of the compation of the compaterior of the compaterior of the compaterior of the compation of the compation of the compaterior of the compation of the compaterior of the compation of the compati

Mountain View, Calif. 94043

(415) 966-7300

KnowledgeNet, Inc. has announced Net/ Wrk400, a networking tool for IBM's Application System/400. Users of IBM midrange systems can

share data and execute commands across as assortment of networked computer systems. Net/Wrk400 features include larget node remote program or command execution, remote job execution and the ability to multiply concurrent target conversations.

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Net/Wrk400 costs \$2,495 per node for AS/400 Models EO2 through E90. Knowledge Net Suite 501.

Suite 501 1250 W. Northwest Highway Palatine, III. 60067 (708) 541-8655

Stratacom, Inc. has introduced network management tools that offer ease of use and faster analysis, the firm reported.

Public carriers using the Stratacom PVA networking switch can offer their frame-relay users increased visibility over the user's virtual private frame-relay ustwork. Eshancements to the Stratacom Valver Phas platform include user-configurations.

able graphic and text reports, real-time updating of information in a structured database format and multiple concurrent access via X terminals.

The network management features

The network management feature cost \$10,000 for networks of up to eight nodes and \$20,000 for larger networks.

Stratacom

Stratacom 1400 Parkmoor Ave. San Jose, Calif. 95126 (408) 294-7600

#### Systems Network Architecture

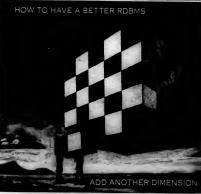
Systems Strategies, Inc. has annount that Systems Strategies Express allo Microsoft Corp. Windows, DOS, Ap Computer, Inc. Macintosh and Unix de top environments to access IBM host ap plications through a gateway. This caps bility is available with Express Network

ang Services.

The service provides client/server capublities on Transmission Control Protocol/internet Protocol local-area networks. Users on a networked desktop
environment can achieve the look of an
IBM 3270 terminal and access one or

Client software costs from \$295 to \$1,000; server software costs between \$2,000 and \$5,000, depending on the class of system. Swatenna Strategies

1 Penn Plaza e New York, N.Y. 10119 (212) 279-8400



There are a lot of relational dots base management systems running on UNIX. Unfortunately, all have one thing in common: They were based on a mathematical premise, not a business premise.

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they need to deal with.

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# **LARGE SYSTEMS**

# Alpha-ready VAX line expected in July

Y MELINDA-CAROL BALLOU

#### Unisys unveils enhanced Open/OLTP

# Candle's interface sparks user interest

BY JEAN S. BOZMAN

# Alpha-ready VAX line expected in July

nd cross-development tools. astry analysts were skeptical about

# DEC, Visage unveil pact

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ng impressions come first at CIE Ame

### DG sticks with parallel office plans

### BY KIM S. NASH

WESTBORO, Mass. — Data General Corp.'s two-prunged approach to hardware — one side proprietary, one side Unixbased — has led the company's office automation strategy down discrement naths.

divergent paths.

Although the two office pruct lines that have emerged exchange information via worm networking gyrations, said it has no plans to meld proprietary CEO with its aspansant med linity networks.

move CEO to DG/UX.

The main reason, accord to William Zastrow, vice product of office systems, is Avison customers largely do want the MV-based main.

ported to the Unix system.
Although CEO is more robuthan current Avision offerings
AV Office or AV Object Office a
CEO port would "close an oppitations," Zastrow said. To
tweaking involved to get CE
unning on Unix would not be a

Instead, DG signed a joint of velopment pact with UK-base Uniplex to create a Unix-base office automation package, cod named Modley, that will provide the providence of the UK-base Office and Object Office.

In the works

On the drawing board are ele
tronic-mail interoperability are
integrated fix, among other a
plications. Medley in the out en
juent year. Pricing in one yet
nationed but will be based on th
number of users, the compansaid. The product will most like
run on other Unix platforms in
addition to Aviton, includie

not yet in the U.S.
Meanwhile, CEO was recent
by upgraded. Besides enhanced
E-mail, print and time management facilities, CEO Object Office 4.0 includes object-oriented
and fax technology, among other
features. It was originally states
to ship in April with upgrades to
the proprietary hardware line

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spokesman said.
CEO "is one of the key dring forces behind MV salet said Joe Mettee, MV produmanager. He also said in a recriment with the company of about \$100,000 worth of a MV business in 1991 and the CEO "was a big factor."

Wang ships first of CALS line

BY GARY H. ANTH

Wang Laboratories, Ir two years ago anno plans for the Compo Acquisition and Logis tics Support (CALS market, has unveiled it

market, has unveiled its first major product to support that strategy. The system is an information gateway that will convert text, graphic and image data in a variety of formats and from a variety of

standards.

CALS is a program conceived by the U.S. Department of Defense for image processing and paperless door ment management as

sociated with the design, manufacture, acquisition and maintenance of weapons systems program is implementing

rent standards and fostering development of new ones for electronic transfer and inte tion of technical data.

Quite o bundle
Wang's CALS product, call
Keyops, is an integrated packa
of the following software books
of A graphical user interface as
revision tracking feature dev
oped with Boston Softwa
Works, Inc. allows users to me

Cincom floods user meeting with releases

cincom systems, inc. in Cincon nation and directions at its user group meeting, held in Nashville earlier this month.

The hishlights include the fol-

lowing announcements:

• Version 3.0 of the Supra data base management system which Clacom executives de acribed as fully distributed an able to support tasks such multisite update and distribute referential integrity. It is in bet

testing at one customer site is slated to be formally nounced in October. Supra 3.0 will run across ferent systems, including I mainframes, Digital Equipo

es, Digital Equipment XXs, Unix boxes and ed systems. Developer'a Workstasae 2.1, which runs un-IOS and OS/2. New feaude SQL access and a data, processes and participents involved in the generation, approval and use of data. a PowerTag. from Avalanche

to Development Co. In Doubler, tend Colo, converte data from popularity of Colo, converte data from popularity computer with these computer wided legistics and supply standards:

Standard Garactined Markey Language (GGM1) is a streatured for device independent of the comment of a streature of the comment of a streature of the comment of a document.
 Initial Graphins Exchange Specification every element of a document.

describes vector graphics used in engineering descripts and included linearing in computer-called design systems.

• Computer Graphics Mutalile in smothway of describing vector graphics and in many law control of the control of the

way of describing vector graphics or most in graphic art vertexistions. • CCITT Group 4 for fax describes a pressed bit map or mater graphics.

and computer-sided design (CAD) data, into CAL Sormata. • Two applications for creating and manipulating text, tables and graphics. Author (Editor from SoftCound, Inc. in Toronto is an SGML authoring system for complex document files. Pre-

shared design repository that renides on local-area networks.

• VSAM-to-SQL migration tools, which are scheduled to go into beta testing during the fourth quarter.

Ments Distance 5.2 miles

fourth quarter.

• Mantis Release 5.2, with pe formance improvements. In ce tain instances, this release use one-seventh the resource on sumption of earlier Mantis we sions, according to Cincom exercitions.

Microsoft Corp. Wasdow based Mantis version that allow customers to cut and paste diferent development tasks among the control of the cut of the cut

officerest windows.

• A new query writer to run a
der WAX/VMS, Unix and on I
platforms that is being dev
oped with another vendor, I
Software Corp.

• Version 2.4 of Mantis for Wa
which includes a factorism was

which includes a language-sens tive editor. Future releases of this package will support DEC Ultrix operating system as we t as the Open Software Founds tion's OSF/1. • A knowledge-based tool to

> developed with a vendo JK. JOHANNA AMBRO

View, from Rosetta, can be to meniculate and apportate

> ering drawings and CAD files. Martin Marietta Energy Sy. ns, Inc., a contractor for the S. Department of Energy, is beta-test user Keyapa at the Os

Keyopa at the Or Ridge National Labor tory in Tennennee. Or Ridge is evaluating it use for exchanging CALS-standard data or lated to the manufature of nuclear weaons. "For example,

Lawrence Livernum
(National Laborators sent us data in fluiti
Graphics Exchang Specification (GGES format, we could us Keyops to view and as notate that IGES draw ing." said Albert Klein section head for Logic

Marietta. "What's interesting about Keyepa it combines all four major standards into one work-... integrated with a nice

certain... integrated with a ner interface."

Klein said Martin Mariet into working with the Defa ogistics Agency in Washing change of CALS-compliant das between the agency and arm businesses bidding on govern ment contracts. On a test nerock, a Sun Miscrosystems, in sociatation running Keyop insulates an agency node while an Intel Corp. 1486-based Wan Intel Corp. 1486-based Wan

In the simulation, the defense agreey posts requests for bids with engineering drawings in classed, to a balletin board, and the small business download and analyzes the information.

Darnee Phipps, director of

Darsoe Phipps, director or management consulting a Gartner Group, Inc. in Stansfeld Conn., and Ecypps — princed a 820,000 for a single uner — wil appeal to organisations that can not affired matterialism dellar, en terprisewide CALS system such as those developed for the Pentagen by PRC, Inc. and Computer Sciences Corp.

"Keyops is very well-post tomod for the interface between the main contractors and its say pliors," Phipps said. "So, for er ample, if Booing is delivering a entire aircraft, Booing's supply era could supply CALS-comple

Keyops is available now for Wang RISC Series systems run ning IBM's AIX, 485-based PC running The Santa Crus Operation's Open Dealstop and Sa

### Software sales on rise

the worldwide market goves and personal prosoftware will grow to The illion, up from \$45.1 bilgol, according to a redy by Forrester Re-

ent study by Forrester Reearch, Inc.

The study included product
througypes such as databases, operatag systems and utilizes and deelopment tools and applications. The software analyzed

frames. The Cambridge, Mass., n ket research firm also predic wase cames rom 40% to 57%. The systems wendors will continue to lose market share in noft-ware, the report said. To complete the study, For-rester gathered data for 1989

to compare the study, reventer gathered data for 1985 through 1991 from 112 independent software vendors and from 12 systems wendors. Trends were analysed and projected through 1996.

Although mainfrance andi-

hall the worldwide antiware market in 1996, developers' dependence on that platform will drop from 59% of their revenue in 1991 to 36% of sales in 1996, Forrester said.

mate's up or dominance of time-sharing systems is abousing a mateurist agreement tasken its claim to a larger class to the control of the con

Clear/server
File sharing
Stand-sharing
Time-sharing
\*Projected \$101.5 billion

COMPUTERWORLD

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and shown full conformance to the complete suite of the Federal Information Processing Standard (FIPS) 127-1 publication.

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# Smaller, faster, but not cheaper

EMC's Symmetrix storage systems beat IBM's conventional DASD in key areas except cost and ease of customizing

- . They're faster: EMC's Symmetrix models give users 50% faster response time than IBM's 3380 and 5% to 10% more speed than IBM's 3390.
- . They're smaller: 40G bytes of disk capacity fits in onefifth the floor space of conventional IBM drives.
- . They cost about the same: Users paid \$8 to \$10 per megabyte for EMC's products, equal to or slightly more than IBM's offerings.
- . They come with less tools: More vendor support is required to customize the drives compared with IBM, which offers stronger customer storage management.



- I you want faster extrage in the marked was waster periodic by the committed waster periodic but don't just on making too many choose, the Dal's Symmetric Acceptance, the Dal's Symmetric But if it is ming and intense strong management new poor facts, Dal's Leis management are poor facts, Dal's Leis management are poor facts, Dal's Leis and good grant part of the convention of the control of the convention of the control of the convention of

has already installed a few hundred of its Symmetric divise. However, this is still a very small dent in a world of more than 50,000 BM 3300 installations. Moverthelens, the performance and appro-eaving benefits make RAID appro-side the common strong devices direct become sorring devices (DASD). However, can users achieve the name level of reliability and storage ca-pacity with smaller dails?

### RELIABILITY

On the reliability question, the evalua-tors reported that the Symmetrix drives equaled or exceeded their expectations. One company never had a failure, while the other three reported failures that were contained within test environ-ments or were immediately identified

ntee reliability, two of the four companies use disk mirroring — where duplicate data is stored on another set of disk drives (also known as RAID Level-1). Mirroring involves twice the inv

NOUSTRY, DIVERSIFIED SERVICES

near because duplicate equipment is re-quired. "We can't be down during 9 to 5, and we want to guarantee 100% avail-bility." (Company 2 said. By contrast, Company 1 doesn't use introving because the company isn't de-pendent on immediate access to the stat stored on the Symmetric drive. Company 3, formerly a beta-test tite. mirrors because channel distorter. site, mirrors because channel adapters have failed in the past. It reported that the mirroring has effectively prevented

any failures from impacting operations.

Company 4 uses a technique simila to mirroring called dynamic sparing which is less expensive but still provide quick backup should there be a problem.

### PERFORMANCE

The Symn er than the 3380 and only slightly faster than the 3390 drives at all sites. These s were on par or slightly bet

resurs were on par or sugarty better than what users expected.

The EMC drive design, which in-cludes much more cache and many more controller channels than conventional drives, is the main reason for the perfor-mance boost, according to Gens.

Company 1 found faster per mance using BASD Past White, exc when there was a cache miss, and the IBM drive was a little faster. Company 2: "Performance exceed the IBM and Hillarch platforms we to oil. The EMC also worked better was mirroring than IBM's drives runnifulationy. The dual copy was slowing down. We dish to notice any degradate when the IBM and the IBM a

### SUPPORT

EMC's technical support is as good as IBM's, the users said. The vendor regu-



Cost/1M bete Overall cost

IBM 9121-580 IBM 3380-Ks; 3390s 300G bytes 72G bytes Yes On-line and batch

encription: VSAM, sequential batch process CICS, IDMS and DB2 on-line applications enchmark: EMC's 4424 is 9% faster than the 03 using DASD Fast Write



Cost/1M byte Overall cost Floor space

4424, 4416, 4832 (3) IBM 3090-150; 200E IBM 3390-A28; B20 (2) 160G bytes em. em On-line and batch

INDUSTRY FINANCIAL SERVICES



larly checks in to clear up trouble be-fore it impacts operations. Symmetrix mirroring and hot replacement allow EMC technicisms to fix problems with-out downtime, where BM technology still requires name downtime for re-

placement.
"They are head and shoulders above some of the other vendors," Company 3 said.

3 said.

"Even though EMC technicisms of ten have to travel greater distances to the site, they are just as responsive as BM and sometimes offer more in-formed answers about problems," Company 4 said.

### **COST PER MEGABYTE**

List price for Symmetrix 4424 with 30G bytes of disk and 512M bytes of cache is \$510,000.

cache is \$510,000.

The high-end 4832 with 40G bytes of disk and up to 3G bytes of cache is \$640,000.

BM's 3390 with 180G bytes of disk and 256M bytes of cache is \$2.3 mil-

• If you were to take four Symmetrix 4832s to gain 160G bytes of capacity, the cost would be \$2.5 million — high-er than the IBM 3390 but with 12 times

more cache.

more ciche.

The users — who paid \$8 to \$10 per megabyte — were divided on whether EMC's drives should cost less than BM's or if the increased performance and space savings should come at a pre-

and appear ensiring should come at a gen-company of close to they 3200 over an ISM-dire in a necess acquisition is a man of the come at a consistent of the com-cess at a second was more often ca-cular to the come and the company of the direct are integrated with the contra-tation to they cannot be partialed sepa-rately, while ISM allows more ISAS "Mex can get similar performance from a 3200, and it's close man of the "Mex can get similar performance from a 2000, and it's close man of the they can't get say letter on competing the great of the preference of the separation of the they can't get say letter on competing the great of the separation of the separation of the second of the second



ing costs were comparable to IBM's dual-copy costs, but mirroring in-creased performance while dual copy slowed it down. "The performance was worth more money to us," the firm

MAINTENANCE COST

EMC offers 24 months of free mainte-

### **OPERATION**

rewere mixed reviews on opera-from the four evaluators. While party I was pleased to add 100G s of storage without having to add oned, the other companies com-rel about the inability to test and figure the drives.

plained about the inability to test and reconfiguent the drives on their own. Company 2: "They make certain claims but don't have the shilly to test them. For example, testing dynamic paying requires the information, that if these work. This is new technology, proudo want to test it."

Company 2 also reported that mirroring in not an implie to set up an aductory. "With IBM you can describe a deal copy in about 15 seconds. With IBM you can describe a deal copy in about 15 seconds. With IBM you can describe the second copy in about 15 seconds. With IBM you can describe the one of the through the PC on the book for the through the PC on the through the through the PC on the through the through the PC on the through the through the PC on the through the through

peration takes longer. You have to ermine what you want to mirror,

ew level without any type of tanous, heir weak point is operational." Company 4 added: "With dynamic paring, we waited for it to trigger in a real-life situation to test it, and we still

Michael Sollivan-Trainer in Computerwoold 'n



3 3

chamark: EMC's 4424 gives us s 10% to se in DB2 performance; 25% faster than ad 5% to 10% faster than the 2390

234.6G bytes

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# RE

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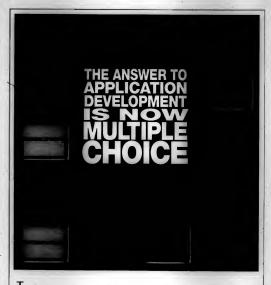
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# APPLICATION DEVELOPMENT

### **Progress** plans port to Alpha

Object orientation catching corporate eye Users still approach technology with caution; enterprisewide applications still 2-3 years away

### Technology goes mainstream



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### Sunrise package promises end-user prototyping

BY MELINDA-CAROL BALLOU

NEWPORT R.L.— Surine Soft ware International, Inc. this week is scheduled to release a new version of its Morti whether to release a new version of its Morti under the referse development tool with support for interpreted inaquages, a distance browning respective of the respect of the respective of

Dasic, List'er Ici.

"Now you can do complete and rapid prototyping without becoming a down-and-dirty programmer," said Feed Sells, president of Sunrise Software, Sells said his company has met customers who want to prototype a complete system and then turn it over to the programmer to imple-

"They want to model the entire user interface so that every button that's clicked on performs the appropriate ac-tions. Before, you could statically create

### ParcPlace boosts development line

huscements to its Objectworks/Small-ild development environment.
Objectworks/SmallTalk Release 4.1
w supports Apple Computer, Inc.'s iscintosh System 7.0 and Microsoft cap's Windows 3.1. Emprovements include direct access to stform-specific facilities such as Win-mes dynamic link litheries, Unir remote rocedure calls and sockets as well as

graphical user interfaces.

Objectbuilder/C++ (\$2,995) and Objectkit/C++Of (\$995) are both specially

### Excelerator release does Windows

### NEW PRODUCTS

y control, the company reported. ReeAds-Exec is priced at \$5,000 for

Excel Software has introduced MacDe-signer 3.3, computer-sided software en-gineering technology that runs on Apple Computer, Inc. MacIntoh systems. MacDesigner 3.3 allows software de-signers to apply object-oriented design methods to development projects, redu-ing development time and improving soft-

er versions.

MacDesigner 3.3 is priced at \$995
Excel Software
212 Waconda Road

ani-SPF the popular editor/user interfaces that today Management Services

uni-REXX. The powerful system control language that moles posts for existing applications easy.

ani-XEDIT. A formitor Advanced users office

Andersen's Foundation For Cooperative Processing CASE product does what other CASE vendors only promise: designs and generates code for client/server applications.

Considering how much has been written about CASE tools for cooperative processing, we thought you would appreciate an executive summary.

> ANDERSEN CONSULTING

# **EXECUTIVE REPORT**

PLAYING PROFITABLE

# The IS of champions

They have high profits, low debt—and are growing like mad in some tough markets. What's the role of IS at these pace-setting winners?



20th Contury's Dollays Annual boasts of 20% in technology spending and a focus on 'creatis officiencies' has belief the Southern Colifornia such and condo in second and a focus on 'creatis

BY ARIELLE EMMETT

An a Company for the predicted: The state of Colleges's A forecast communication of Colleges's A forecast communication of Colleges's A forecast communication of the Colleges's A forecast control of the Colleges's A forecast communication of the Colleges's A forecast colleges of the Colleges of th

itable auto and home insurers.

Dailey crotics careful policy pricing, an acces on customer service and aggressive processor upgrades and new applications for the insurer's as ecoss. Company officials are batting the state-or dered refund in court, saying it is "unifal unreasonabit" and pressities the firm's towards.

'Dealing with positive growth'
Coping with prosperity has also become

Sometimes around with positive growth.

writer (policies are said directly to consumers by telephone), technology Jays a vital role. "Thes systems have to be top onth house the yel of have agents," says Gerald Lewinson, a first vior president at Merrill Lynch Global Securities "They distribute their product directly to the padic, and they handle all inquiries and all the cisims." Five years ago, the company averaged 200,000

Five years ago, the company averaged 200,00 con-line translatetims per day. Today, the number has almost quadrupied to 750,000. During that time, the number of employees swelfed from 1,30 to 2,100, and information systems staff grew from 55 to 120. Handling the traffic is a complex net work of vice/epidat connections with a 45 million in structions per second ORIPS) IBM Enterprise Systems0000 500 at the bulk.

Despite its relance on technology, 20th Centry verages. Ut like many other carriers, the company maintains low 15-expenses-to-premium ratio: 1.4%, con pared to 2.5% to 3%. Even no, the 15 budget (\$1 million in 1992) has grown about 20% annual

Senior management keeps a tight rein on IS on lays, partly because of what Lewinsohn calls th company? "phenomenal" expense control. a stoering committee made up of senior officers an chaired by Dalley gets involved in major hardware buys or big development efforts. Management, as

But tight control doesn't mean no growth. On the contrary, 20th Century has pursued system rojects with laser focus. Among the major IS per sets are four hardware upgrades since 1987 the soosted host horsepower from 8 MIPS to 4 Playing Profitable

### KEY POINTS

 Industry-leading companies are alimming down, muscling up and carefully deploying information systems in key areas.

Despite the repression and pressure to squeeze competitive advantage out of fewer technology dollars, demand for information systems and services is growing.

 Pasctional areas such as customer service are a target of various technolony projects.

p-IS departments at industry-leading companies take customized tacks to loop their companies at the forefront. See stories on Allegheny Ludlem, Bandag, Conseco, JWP and 29th Century Industries, pages 81, 84, 85,

### PAST FACT:

» According to the Life Office Management Association, or LOMA, the average data processing to in approximately \$25 per policy.

### QUOTABLE

the name of the

Charles E. Pergum JWP, Inc



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intel.

# The IS of champions

CONTROLOGNEM MCE 81

MINS, a network of chromitals and some personal comparers. We see concertainty, and the control comparers. The security of the control comparers are reported by most of a security of the control comparers and the sequence of the control comparers and relative super series and relative super series designed and relative super series and comparers and series and relative super series and relative serie

Another ley focus is improving active.

Another ley focus is improving active discincy. Ten remote company locations are indeed to the network value discincing. Ten remote company locations are indeed to the network value did for IT network. To get cross the control of the company location and t

reduced within 24 hours 95% of the

Nothing but the best Even the first's back-office systems are course, the first's back-office systems are course, they have information available in tremendous detail almost instantaneously. "Levelsoches says.

Dailey credits much of the first's Dailey credits much of the first's Dailey credits much of the first's Dailey credits much of the first systems are pintly developed by uners and IS. Interestingly, 20th Century still writes 95% of its own order, which were \$95\% of its own charge to how user work flow" and their become user work flow and their become user work flow" and their become user work flow and their become user work flow and their become user work flow and their become user work flow.

\$900 million property m M. Dailey, vice presi

Pico-year coorages) y: 32.3%; (Last 12 m

1992 IS budget \$14 millio

mployee/IS ratio: 17.5:1 later platforms: IBM ES/9000, Novell-based LANs.

GAME PLAN

• Keep a lean IS profile despite high growth.

• Limit expenses to 10% vs. industry average of 24%.

more intovireligeable about insurance matters. The computer does, however, environment. The said notwithstand traits to fill a staffing gap or provide a specific soil. If the provide is a provide a specific soil. If the provide is a provide is a provide as the provide is a provide in the pr

### Bandag: No more slipping projects through the door

no. Outside Very, controller and information system effects for a Bodge, the then to so may be a some of the source of the sourc

clout. The largest tire manufactures come to show Buddle their line designs them. The largest line largest li

productivity of systems and applica-tions. "Other than hardware costs," he says, "we're basically driven by infla-tion."

Too."

According to Brown, the tight fated-near comes straight from Chef Execution. According to Brown, the Execution of the

Stoos, Bandag's manager of operations and technical support. "Our chores are

and technical support. "Our chores are mostly maintenance."

Except for strategic business soft-ware, Bundig now uses packaged soft-ware and systems for such applications as accounts receivable and ber-coding. Using packaged software also encour-ages more user ownership and input, ac-cording to Wesey.

site by self-directed teams, which Vesey set to replace centralized IS as part of a companywide refocusing two years ago. One secret of Bandag's success, Brown says, is to have neither too much not too little technology. "In reality, this is a very simple business," he says.

Bandag's information system "is as so-phisticated as they need it to be." Topping the shorter priority list is improved customer service and sales. Cost containment, while important, is not as much a priority as high payoff ap-

plications.

A key project in autional billing update yete to automate the customer service projects to automate the customer service with the customer service with the customer service with provide automated truck fleets, can access the company i BMD 3000 2000 fluminframe.

A high-specific flow of the customer is serviced to the customer is serviced to the customer in the customer is serviced and customer is serviced and customer is serviced in the customer is serviced in the customer is serviced automatically from maintaner files to ISM Personal System (2) along fair but the customer is serviced fair bornts. They are then without purpor.

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the company.

And that means the old days of isolated IS are gone, hopefully forever, Vesey says. "We're getting away from a style where projects were alipped under the door. We're getting out and becoming part of the business."

ARIELLE EMMETT



o (Piso-year averages) May: 42.5% (Last 12 months: 32.5%) with: 12.4%

imployee/IS ratio: 96:1 Injor platforms: IBM 3090 200E, 56K-bit Token Ring WAN.

NAT PROJECTS

National billing system to automate customer service.

Shift from centralized development groups to self-directed teams.

Tots out two-year backlog of jobs.
 Train IS workers in business skills.

# JWP: Lean, mean business machine order entry, tracking and date to the control of the control product its to the control of th

er in environmental ser-rices, totals only \$10

store chain.

How can a firm that made its name by swallowing companies whole

— a dozen between 1986 and 1989 — keep 
to lean? Simple, Perguson says: By focusing on 
the business, not IS.

critical business factors. Concentrating on bases can be self-concentrating on bases can be self-contentrating on bases can be self-contentrating deathers for capital and meeting deathers for capital contentrations of the process of complex self-contentrations of the capital contentration of the capital capit

d not. For example, although many momentum faminacial systems were inmanuterized financial systems were insiled, they had no impact on IWP's allow they had no impact on IWP's allow that has changed. Today, decises about technique are made at the ofsilent and departmental level when of the state of

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on explains. "We're ring. But the key to ms is not to be just a sany with a lot of a but an integrated, incal services com-



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while place of their and the properties are a large controlling costs by each installed place, considerable place, considerable place, considerable place, considerable place, considerable place, planning and besting, as well as properties to premare and place.

The planning and besting, as well as median, and the place of the place o

ting overall strategy, including plat-form, architecture and critical success factors. "We can provide the technology to tie networks together, but the vast majority of work is putting uners to work." be says. For exame



at 810 million

IBM AS/400s linked to DEC VAX 60

sing, systems and network installation with IS help.

JUNE 15, 1992



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# Hot or cold, steel maker forges ahead with IS

HE 5.400-EMPLOYEE



# Conseco users, execs 'joined at hip'

"IS is being run here today much in the same way it was at the start," Kilian says. "The goals haven't changed."

The company's mission statement

The company's mission statement says Conseco is dedicated to leading the process of change in the insurance industry "by setting new standards for upgrading efficiency, product innovation, product profitability and active investment management."

tive investment management."
Freedom from nursing older sys-tems also helps keep work on track, Kilian says. "Conseco isn't burdened with a lot of historial overhead. We are capitalizing on the fact that there are

penies it manages. For example, Con-social storage data processing cost in the industry swrage.

It's not hard to find prints for Con-social systems. Michael A. Lewis, as ter Reynolds, is impressed by the way the firm has handled a large, fast-growing base. "One of the things that their halfs to be a low-cost distribu-tor and processor of insurance." Levi-nary. "That steem from technique in the complete strong computer-iation."

ization."

A. M. Best Co., the respected insurance rating organization, agrees that processing efficiencies have helped Conseco enjoy unprecedented growth rates and profits.

growth rates and profits.

To keep in tip-top shape, Conseco has been downsizing critical applications (except ledger and policy administration) off two IBM 3084-QX mainframes and installing third-party, 386-based personal computer.

cknees. A series of distributed networks based on Novell, Inc. local-area net-works handle companywide financial reporting, investment management, inventory and human resources. Con-seco wants to keep systems out of di-

rectuser control.

"We treat the file server as we treat a mainframe. Data files go into the glass house, the data center, where they are controlled, backed up and secured. In this way, you can put enterprine-type applications on the LAN and not worry about your data,"

Combined communications.
Combined communications.
Colline works hard to stay in force.
Colline works hard to stay in force.
Colline works hard to stay in force.
The stay of the stay in stay.
The stay of the stay.
The stay of the stay

blem drives us."
-ARIFLLE EMMETT



agering 956% leap in stock value w about 59). Kiliam, Conseco's senior vice pres-te of data processing, knows the mbers cold and takes evident pride reciting them. "The company last r made \$116 million." he says. he previous year was \$42 million."

trative operations.

The company inself runs very lean:
With 1,300 employees, the ratio of its
general expenses to collected premiums in 3%. In comparison, the industry average for 100 other tile insurers,
including big name companies such as
Metropolitan Life Insurance Co.,
more than 12%, according to recent

the tital and the tital and tital an

very inefficient companies out there that need to have their operations

that need to have their operations cleaned up."

The last few years have seen a string of acquisitions. Among them are Western National Life Insurance Co. in Amarillo, Pezza, 1987; National Fidelity Life Insurance Co. in Dallas and Jefferson National Life Insurance Co. in Indiamagodis, 1996; and Beneficial Superapodis, 1996; and Beneficial Superapodis (1998).

card the insurance co. in Los Ange-les, 1991.

But feeding has been tempered by cost-catting, "We typically out data processing expenses 40% to 50%. That'a the standard we will be held to going forward," Kilian says.

Consolidate to the max
Whenever possible, the company
tries to consolidate and limit the data
centers and operations it acquires.
"We convert applications systems to
our standards, and we use industry
washe systems, whether our standards, and we use industry standard operating systems, whether on mainframes [MVS] or PCs [MS/DOS, Windows]." Kilian says. The formula works: According to Life Office Management Association, or LOMA, an insurance trade associa-tion, Conseco has more than doubled

### BOTTOM LINE Back to basics

JOSEPH MAGLITTA and ARIELLE ENGINETT

JUNE 15, 1992

# IN DEPTH

# High-tech heroes



they couble us to me they get us informs tion faster, they plet us informs tion faster, they help us balance our checkbooks. What is often overclooked is the powerful in pact these machines are having one or quality of life. The Comparative of the contractive of the contractive

Wilderness Society

ome of today's hottest dehates over the fate of North America's endangered forest ecologies and species are being fueled by data from a Wilderness Society computer-based ecology managing system.

Instituted three years ago, the society's Endangered Specie and Ecosystems Mapping Pro ech has come up with what scientists and ecologists consider to be "the best evidence available of how humans have affected for ext ecosystems, including endar gered species such as the North error Spotted Owi, says Pete Morrison, an ecologist who diverted the moise.

So far, the project has mapped more than 25 million acres of forest land in California, Oregon, Washington and British Columbia. While other agencies have produced maps of one forest



growth stage, "Widerness S ety work is unique in that it c ers all age classes of forest," a Marty Rafael, a research proleader at the Pacific Northw Research Station of the U.S. F est Service.

Indeed, the society's mapping system is able to gather and anayerem system is supported to support the system is a support to the system is a support to support the system is supported to supported the syst

Forest growth data is "layered" with data on a range of subjects, including water tables, hydrology, geology, soil, transportation systems and land ownertation systems

Then expert system-based oftware is used to integrate the rarious layers to come up with a sicture of how human activity as affected not only trees but also water systems and endangreed species whose habitat is in the area.

The technology has contributed to some landmark ecological decisions. For example, its reports and maps were used by lawyers and by scientists acting as witnesses in Scattle Audubor Seciety v. John L. Euner, 2 district court case in which conservavice for alleged violations of laws requiring it to protect wildlife. The case resulted in an injunction being issued in May 1991, halting timber cutting and sales in the spotted out habitat in 17 m-

tional forests in the Northwest.

They say a picture is worth a thousand words, and you could see very graphically from (the society's) map just how much the ecosystem had been reduced over the last 30 to 40 years, says Tod Frue, a staff stroney for the Sierra Cub Legal Defense Club, which participated in the case.

case.

"As far as I loow, there is no other source that can give you that time sequence" of how forest ecosystems change over decades, True adds.

Seeing trees in the ferest One of the system's innovation is a technique for analyzing foreign growth in terms of textural variations. Traditional spectral relactions techniques

restoance techniques, which dge forest age and makeup by saltying brightness levels and avelengths in satellite images, a not provide sufficient detail, corrison says. This is particular-true for conference growths, thich tend to have a lot of shadway, he adds.

"With spectral analysis, ou're looking at groups of trees; with tentural, you can get indiidual trees — age, average dimeter, specing and distribuon," Morrison says.

Another key dement of the reject is expert-system-based of twee that is used in the analysis of satellite imagery — both extural and spectral — and parcularly is merging the multiple cultarly in merging the multiple system of information into a final, sompthenoise map, Marrison ays. The expert system also iministes the need for the time-consuming and subjective pressed that the system of having thoman experts oring over handreds of serial stotements.

graphs to interpret the ininterms of spectral and tervariations, Morrison says. at a collected by the system played on two San Microsyfunding plats pile. There is to call area activort. Track pitch and tivities were seen to call area activort.

MIT Media Laboratory



MIT's Vorcoo: Exploring how music works and how humans process information

pitch Miller could play along with a computer if his above rate today, thanks to work in progress at MIT's Media Laboratory.

Barry L. Vercoe, professor of Media, Arts and Sciences at the Media Lab. has ancest the last 16

Media, Arts and Sciences at the Media Lab, has spent the last 16 ears working on his Synthetic Performer, a hardware and softvare system that can accompany in instrumental soloist or singer. "I wanted to create something hat could actually process audio in real time." Weroen sure.

to Performer is not solely one of a practice partner for musicians. Vercoe, who does some compoing ("This has to be done from the musician' a perspective," he says. "Amateurs don' know what they are doing."), is interested in revealing new knowledge about how music works and how humans process information.

"When my two children were earning how to play, I asked myelf, "What went on between hem?" We now know something hout that," Vercoe says.

inding his pitch error's system consists of suit-based software that can ack pitch and timing and match totes as they compare to a score tast has been keyed in or played through a digital keyboard isrance. The system then gath-



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stican playa that score. The primary hardware consists of either Digital Equipment Corp. or Silicon Graphics, Inc. workstations that are attached to solenoid pianos for accompaning the performer. However, "the published score [is only] a guide to what the performer might really do," Vercoe says. In live performance, there might be note a performance there might be noted.

might easily do," Vercoe says. In live opportunance, there might be quite a difference between the score and actual playing or signing, as is the case with "a remainte piece with a let of tempo rubato," he adds.

To ensure that the Synthetic Percourse can keep up. "Insteamig" software keeps statistics on the specific four to five rechards, the system "remembers" the human performer's strike and tempo and adapts to er's style and tempo and adapts to

Respect from peers ent is highly regarded by colleagues.

At first I th ht it was impos "At first I thought it was impossi-ble," says John R. Pierce, a retired Jet Propulsion Laboratories tech-nologist and professor who is con-rently working on projects with the Center for Computer Research in Music and Acoustics at Stanford Uni-versity." "I'm amazed at what he is ac-

advanced technologies to boldly go where no one has gone before but where hundreds of thousands are exmay well he headed for commercial pected to throng four years from now. may wen the next several years; Japa-nese companies are eyeing his work closely with the idea of creating auto-matic harashe machines. — Michael On the way, it helped win its state capital the coveted designation as the site for the 1996 Sum for the 1996 Summer Olympic es; an estimated \$4 billion in ex-Fitzerrald pected incidental revenue; and a shot

Georgia Institute of l'echnology Government oad

at making this once-sleepy Southern city the nerve center of the next-gen-eration technology industry. The multimedia lab's creation is a three-dimensional, interactive multi-media virtual travel application that



The Olympic flome will shine in Atlanta for the 1996 Summer Olympics

halk this one up as a fiveenables a user with no technolo star trek: Georgia Institute of Technology's Multimedia acumen to zoom around Atlanta circa 1996, entering and exploring the fu-Technology Laboratory in ture Olympic Village and the city's amusements and amenities. Atlanta harnessed a host of However, the system is more than

a high-tech civic booster; the Olym-pic application is being eyed for future

pic application is being eyeu as a security and and medical uses.

The idea for the application began to take shape five years ago when Bally Payne, president of the city's organizing committee for the Olympics, asked a favor of Georgia Tech's newly

appointed president, John Patrick Crecine. Could a Georgis Tech team build a room-size architectural model to show what Allanta had to offer as a contantial bused.

potential host city?
"Crecine ricocheted off the w the suggestion of a papier-mache model — that's 18th century," re-calls Frederick Dyer, director of special projects for the university's in can projects for the university's infor-mation systems department. Crecine counterproposed a 3-D computer model geared to let users "fly wher-ever they chose — over, around and inside each venue," Dyer says.

There were a couple of catcl First, some 60% of the weaves those that comprise Atlanta's Olym-pic Village - didn't exist yet. Second. most of the targeted users — mem-hers of the Olympic site selection committee — were not technological-

Virtual reality gets gold
The prospect of taking sontechie users on a virtual reality tour through
nonexistent territory didn't daunt
Crecine. Drawing on campus, community and computer industry resources, he put together a largely volunteer team that spent the next three years building Crecine's dream may chine: a melange of technologies, in cluding laser disc, digitized voice, vi cluding laser disc, digitized voice, in-sualization, 3-D animation, video and human motion capture, whipped into a Disney World-fike presentation con-trolled by a Commodore Business Ma-chiaes, Inc. Amiga 2500.

To take a ride, the user sits be en two screens: a personal com iter showing a computer map with ms for each Olympic event, and a television featuring interior and exte-rior views of various Atlanta loca-tions. A cursor on the map, Dyer says,

tions. A cursor on the map, Dyer asys, corresponds with the precise vartage point of the scene on the television. Once "air" a location, Dyer explains, the viewer, using a trackball, "is able to circle above, even dive inside and through each of the facilities, whether already built or only compare writed from architectural render-erized from architectural render-

That's Phase I. A second phase added a visualization of the Olympia Village projected onto three 6-f screens and controlled by three com ters, complemented by a coffic-size, computer-animated, to stitive 3-D model of the village surrounds the vil

m, surrounds the village with ouds, projects moving vehicles and its on a display of fireworks. Phases I and II of Georgia Tech'a 500,000 time machine wowed the Olympic site-selection com Payne says. On Sept. 18, 19

Avid Technology, Inc. Media, Arts and



o, time is the wideo atudio, time is the key to making money. The more versions of a piece you can show to a client in the time allotted for the project, the more opportunities you have to win his heart — and business.

Not only do the tedious, complex

tions required by traditional videotape editing systems slow you down, editors say, but they also often pinch the creative process. For some film shops, the entrance

old-style, reel-to-reel machines to exit, stage left. With Avid's units, editors say, they can express their cre-ativity without sacrificing speed. Estimates vary, but some users say Avid's random-access, high-speed gizmos cut two- or three-day projects

"You go in — bing, bang, boom — and do it," says Jane Sinclair, presi-dent of Advanced Multimedia, Inc., a video production company in South-field, Mich.

The core of the system
The bing, bang, boom enablers are
turrakey setups built around a customnade, object-oriented database running on modified Apple Computer,
less their beautiful and the computer,
the beautiful and the computer of Macintoshes

The systems catalog each piece of sound and graphical material in the specialized database. Users can recall specific audio or visual objects from there, combining them onto a tape on-line rather than spicing them togeth-

Avid systems are used behind the scenes at 750 production studios worldwide. If you have a television, you have no doubt seea Avid-made work, such as the documentary Mak-ing Sense of the Sixties and spots for et Coke and Nike sneakers. Det Cote and Note sneakers.

The random-access nature of the Acid machines, which are based on mens-driven, point-and-click Macintoshes, "marry the advantages of film and videotape editing and eliminate a lot of the downside of both," says Curt

Rawley, president of Avid, which is lo-cated in Burlington, Mass.
For instance, videotape cannot be physically out and shuffled the regu-lar film can, Rawley capains. Select-ing and moving elements requires re-recording them to anatest tops after scanning through entire casottes se-quencially to find the elements. And falling through long against the properties of the control of the con-trol and the control of the con-trol of the con-trol of the control of the con-trol of the con-trol

combinations and strees them as com-puter files, which means users and call, copy and cut the document as many times and is an amay ways as they want, say Wynn Wodenz, presi-dent and chief chitor as Aries Produce of the company in Aries and the company in a confinence way that lets users up through files and the company in the compa

they seek. they seek.

Because editors can quickly concoxt several prototypes of a film before putting it in finished form, "we
can take lots of creative lesps that the
ol way, which made you confier to
a single, methodical way of editing,
wouldn't allow. "Winberg says.
Prices range between \$25,000 and \$80,000, depending on hardware
model and built-in editing features. An
del-time editing bench typically goats

### Ohio's Center of Science & Industry

magnet: You are a ciment on Man, Sadekely, the origon in poor space station fails. The other laide even remoders are to their side even one things to der Don a space sit and out of the space of settle of the space should be space of the space of settle of the space should be spaced to the space of settle of the space of the s e: You are a scientist on

on a four-year tour of 12 U.S. cities the exhibit is expected to draw 5 mil-

non visitors. During the one-hour journey, "sa-tronauts" ranging from second grad-ers to senior citizens control soli-sam-pling robots, repair equipment, oper-ate communications laters and track the Martian weather — all on board a 60-ft space craft simulator built to NASA specifications.

NAMA specifications.
According to Charles O'Comor,
executive vice president of exhibits
and planning at Ohio's Center of Science & Industry (COSI), where the
5,000-oq-ft simulation project was
developed, Mission to Mars in the first
traveling exhibit that uses space to
exite the next generation of scienearlie the next generation of scien-

ts and technologists.
The idea began four year renor explains, after a co ed poll of COSI vi age interest in space Poundation grant and \$250,000 worth of computers and networks do-nated by Apple Computer, Inc., COSI act about the computer task of a realism.

scratch.



about science as fun as possible,"
O'Connor explains.
After COSI conceived the initial scenario and assembled a panel of advisors (including museum directors, scientists and educations), the painstaking work of creating the core softtaking work or creating use coo-ware, custom graphics, animati and interfaces began. A team con-ing of a local computer consultant 10 COSI staffers tackled the b task, and one year later the softw

a ready to test.

The trickiest part of software forment, O'Connor says, was internaces to electri-nical devices, such as rols, robotic arms, la-

to Mare premiered f COSI in early 1991 befo itting the road last su

mer.

The experience goes like this: During a 15-mm. briefing, crew members get station assignments and computer orientation. Then it's puter orientation. Then it's off to a planetary spacecraft called Mars Base 1, which descends to the Martian sur-face via computerized an-mation on a large-format viewing acreen and custom

onse.
The focus is decidely do-on. Each of 10 rech stations inside the 
contains custom softand hardware for hansearch in en

ple Maximoon an Apple Talk local-area neuwonan Apple Talk local-area neuwonan an offware prompts two-per-ton teams through a series of probon teams through a series of probon area. ivity area.

ent at each step of e crew member lags in

stated accesses for the process for the a month of the control of

Integrated Surgical Systems, Inc.

ip implants are just about the most brutal surgical operation periferated to-day. With the hammering, wolved in installing and saving involved in installing and saving involved in installing and saving as hip socket, the procedure 230,000 of which were performed in 1990 — recalls an ancient time when holes were cut into skulls to release demma. ip implants are just about

Replacing worn and defective ball-tips of human femurs is done today with "caveman technology," says Hap Paul, chief executive officer of In-tegrated Surgical Systems, Inc. in Sacramento, Calif.

tegrated Surgeal Systems, Inc. in
The company has proposed to the
Food and Drug Administration (FIM) as method of implantation that increase
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are to consult of the company are to consult or
any are to consult or corrective arrangery are to consult or
any takes once of the "brustarily" out of the procedure.
With Rebooks, Pat explains, deWith Rebooks, Pat explains, deby using simulated 3-D drawings of

the femur and implants, manipulating them with mouse-driven interfaces. Today, doctors prepare for human im-plants by studying 2-D X-ray photo-graphs of a patient's femur. They use acctate overlays of several implant outlines to see which artificial hip hall can best be placed on top of the hip

can best be placed on by of the bay.

A living jamouth for be east size of the bale excellent of the construction of the bale excellent of the bale excell

is a contrast to current operations in which surgeons pull the hip free from its socket, saw off the top of the hone and cut a cavity into the femur by hand. The surgeon must estimate how big to make the hole to hold the

mplant. Too small, and the surgeon neght crack the femur when hammer-ag in the implant; too big, and the loctor must fill the gap with bone ce-nent, which deteriorates with time

marian at the Sacramento dical Group in Carmichael,

Paul and Barger approached many robotics companies to no avail. In 1985, the two doctors completed a feasibility study and were awarded a BS, the two occors competed a subtity study and were awarded a int from IBM to start the project. Backed by Jim McGroddy, director research at IBM, the team per med its first implant in 1990 on a



obodoc uses scanning and 3-D ima

Calif., since 1983, Paul had often dis-cussed hip transplant difficulties with his friend Bill Bargar, an orthopedic surgeon at Sutter General Hospital in "We had nothing — a crasy idea, that was all," 43-year-old Paul says.

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## National Institutes of Health

ou couldn't do molecular hol-ogy these days without a data-base of this sort," says Rich-ard J. Roberts, assistant director of research at Cold g Harbor Laboratory in Cold Spring or, N.Y. "It would be inconceivable do meaningful science; you would redi wer the wheel constantly."

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s of diseases — the symptoms in which they study the causes.

probase relief
to GenBank database is at the heart of a
ten Gallenk decorate decorate and the tenter called the GenBank Computer Returce, developed and managed by intellimetics, Inc. in Mountain View, Calif.,
the National Institutes of Health in Beseals, Md., with a subcontract to Los
auros National Laboratory for data colstates National Laboratory for data col-

such, Me, with a subcorrect to local microbian ideal accounts of the control of t

entist can mail in the data on a disk or gen-erate a transaction to be sent by electronic-mail over the Internet.

Although the relational database has now grown from 5 million "base pairs."— the basic building blocks in a sequence oc-cur in couples — to 78 million base pairs,

the data lags only a few days behind the lit-erature and in some cases is ahead of it. pos Resson: 95% of the data now comes in to a

mon near-marches and semantices as sequences in the database.

Every day, GenBank grows by than 150 new sequences and rec-more than 1,000 queries from arouns world over the Internet or U.S. S. Communications Co.'s SprintNet, Bri

says.

GenBank's 5,000 to 10,000 users can tap into the database interactively or via



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# MANAGER'S JOURNAL

### EXECUTIVE TRACK

ase, N.Y.-based JWP, c. last week announced at Roy S. Nicologi has n named to the newly co

resources at cat wer Direct, which sting subsidiary of ag legend Horn &

### Who's on the go?

ment write to Nell Margolis, Senior Editor, Management, Computerworld, Box 9171, 375 Cochituate Road, Fram-ingham, Mass. 01701-9171.

# Tough times call for Ms. Fixit

Sheri Anderson's talent for troubleshooting has been the not-so-secret of her success

## BY ELISABETH HORWITT

son can attest to that.

During the past seven years she has risen from design analyst to senior vice president in charge of technology in discount brokerage Charles Schwab & Co. in San Francisco, primarily by acting as Ms. Fluid for problems ranging from overburdened mainframes to discognized data enterts to massive power outages, caused by the 1989 earth-outse.

quake.

Anderson's career as a trouble-shooter began in 1984 when, as a new-corner to Schwah, she was assigned to "what was called the Anxiety Project," she says. "A group of very senior business executives met to discuss the fears that kept them awake at night," she recalls. "My job was to figure out how we could reduce those fears thrusch over the same automation efforts."

Analytical tolents
A former systems analyst and team
A former systems analyst and team
teader at Wells Pargo Bank NA, Anderson was haved by Schwab for her ability
"to define problems, evaluate alteractives and interdisc between the baniness and systems side," the says, "
the side of the side

## PROFILE: Sheri Anderson



To apply cold legic to hot IS issues so as to fix problems - and a

# 'Trial marriage' can bridge CEO/CIO gap

## BY MITCH BETTS

## Senator beefs about USDA's IS modernization strategy

### BY GARY H. ANTHES

WASHINGTON, D.C. — The chairman of the Senate Agriculture Committee earlier this month blasted a plan by the U.S. Department of Agriculture (USDA) to spend \$2 billion on new computer systems at a time when the department is supposed to be restructuring and deventions.

downsizing.

At a hearing on the USDA's com-puter upgrade plans, Sen, Patrick Lea-by (D-VL), asid be war "amazed" at the USDA would embark on a massive systems undermaking program for its four farm service agencies before its four farm service agencies to four those agencies, which account for \$10 billion, or roughly 1996 of the USDA's \$45 billion badget.

The assencies at issue, which Auri-

54 billion budget.

The agencies at issue, which Agriature Secretary Edward R. Madigan
teently said he would streamline and
tegrate. are the Agricultural Stabilition and Conservation Service, the
armers. Home Administration, the
debral Crop Insurance Corp. and the
oil Conservation Service (see chart).

The agencies indernate men near the information technology before cowing what the changed structure will ... it could cost millions to replace or design the technology," she noted. According to Assistant Secretary of

The meat of the budget

Agriculture for Administration Charles Hilly, Madigan has reviewed criticisms of the USBA programs and recognised the USBA programs and recognised the Vasildity of some. Hilly said the USBA has recently beginn developing a trivial plan for information systems and has unoversigned to the same of the programs of the programs of the programs of the programs that has did were improving the systems that support farmers.

Command-It automatically converts

CICS for the long term Converts Assembler (BAL) or COBOL

### CALENDAR

JUNE 28-JULY 4

### JULY 5-11

seconds, July 6-10 — Contact: Towner Q

# JULY 12-18

Boot Camp. Sax Francisco, July 15-17 shore Server Systems, Sax Francisco, Calif.

## JULY 19-25 let. See Francisco, July 20-23 — Contact: Matt ee, World Expo Corp., Francephore, Moss. (800)

Quark XPress Users Conference. New York, July 22 23 — Coreact QUI, Salem, N.H. (603) 898-2822.

## JULY 26-AUG. 1

## AUG. 23-29

yeOptics Users Group Conference. Webington N.C., Aug. 24-26 — Contact: Deens Parr. SyeOptics Line

of '92, Dayton, Oho, Aug. 25-30 — Con-males, DMA Communication, Dalesco, Ohio

## AUG. 30-SEPT. S

## SEPT. 20-26 nago World. New York, Sept. 21-25 — Costact: Ben-Plannouse, Knowledge Industry Publications, Inc., White sins, N.T. (914):228-9157.

Virtual Basilty 'V2. Westport, Cons., Sept. 23-25 -Contact: Meckler Conference Management, Westport

SEPT. 27-OCT. 3

OCT. 4-10

## OCT 11-17

## OCT 18-24





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Digital Bquip. Corp.	hardware	214,375
MVS	operating system	257,248
Cobol	language/utility	443,166

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# **COMPUTER CAREERS**

# Remember English Lit 101?

peral arts success stories prove the importance of nontechnical skills

d. comes in comes in

says.

History major Michael Cisneros also sees a direct link between his liberal arts training and
his current job as a network analyst. In the early 1980s, Cisneros
worked at First State Bank &

Trust Co. in Denton, Texan, while he finished his bachelor's degree in history. In 1988, he bought a used IBM PC Jr. to write his thesis paper. During the next few years he upgraded the computer himself to an XT, learning shout personal computers along the way.

When it became evident there was not mark to mark the way was not mark honour or measure.

was not much money or many po-sitions available for a history teacher, Cisneros

pursued a mas-ter's degree in finance. In 1989, when he completed his finance degree,

in, ne says.

Cisneros got wind that the bank's data processing department was looking to move to a PC-based network. He applied for esition of network analyst nded it on the strength of his PC experience.

Cisneros says he pursued a history degree because he was naturally curious about why things are the way they are and how events develop. Similarly,

Fortultous mix-up
A little marketing pazzazz never
hurt anyone, and that's certainly
the case for John Ultrick, a marketing major who is now vice
president and director of MIS at
Playboy Enterprises, Inc. in Chi-

processing to help build the ngany, which requires a much ader range of skills than the ely technical. It calls for politi-and diplomatic skills as until

having a "very broad-based un-dentanding of the economy, of what makes people tick and how latt these elemental fit together," Ulhick says.

A similar formula worked for Charles Carlson, who started working part-time as a salesuma at Sears, Robeck and Co. while he attended high school. He then earned a backbor's degree in English literature and worked his way us to his current solutions as

serrod a bachelor's degree in Deway up to his current position as
vice president of inchnology servtype produced and inchnology services and inchnology services
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track and eventually landed hims lis current position.

Carlson, too, points to his edu-cation as boosting his IS career.

"Communication in the business world, and in IS in particular, is not a shining star. I was able to bring a level of understanding to annot a management. In trans-

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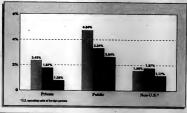
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PS/2 Model 30 286	\$500	\$900	\$300	1
PS/2 Model 35SX	\$1,325	\$1,500	\$800	ī
PS/2 Model 55SX	\$1,200	\$1,300	\$800	ī
PS/2 Model 60	\$600	\$900	\$325	ī
PS/2 Model P70	\$2,750	\$3,000	\$1,500	ī
PS/2 Model 80	\$1,600	\$1,800	\$1,100	ī
PS/2 Model 95	\$4,200	\$4,600	\$3,300	Ī
Compaq Portable II	8425	\$500	\$375	ì
Portable III	\$550	9650	8250	f
Portable 386	\$1,500	\$1,000	\$1,000	ī
SLT-206	\$700	9000	\$400	ī
LTE-206	\$850	\$1,000	\$500	ī
Deskpro 2042	\$500	\$1,000	\$325	i
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SE	\$775	\$875	\$600	٠
IIX	\$2,700	\$3,250	\$2,000	•
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W Recodiment	
Data General	
Digital Equipment Corp	68-69, 103
Entel	
Contraction	
Howlett-Packard	
	20-21, 44-4
BS Conversion	100
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information Subders	
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Below: Faderal Express Corp. 1 Fainties Crow faith secaines on owned from Dick Cowel for a system that coordinates the activities of more than 95 olivarils. Near rights National Budding Massawiri contex holl. Mildfills before pendier Rainey of Amanquing Corp., monives on owned for a system that simplifies the acids quote process. Mildfills off purges Competencerid Smithsonian













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### STOCK TRADING INDEX



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# **COMPUTER INDUSTRY**

# Prime unit

B Prime Computer, Inc. late work filed as inthe late work filed as inthe late work filed as inthe fourthis are at Exchange Commission for its Computer Vision unit. Proceeds from the offering of 1.5.8 million shares of common stock —
priced at \$18 to \$20 per share — and \$300 miltion in bonds will be used to help retire Prime \$ 51.29

to the prime of the prime of the prime in the work of the prime in the share of the prime in the share of the prime in the same Computer Vision Carp. Prime's remaining hard-

u IBM's much-diacussed European persona computer clone subsiditay finally became a fait accompli, as Individual Computer Products in ternational Ltd. recently made its low in London. The wholly owned IBM subsidiary wi initially focus on selling PCs in Europe under the

McData Corp., an IBM Systems Network Architecture equipment veginnent veginn

a IBM's renewed interest in OEM sales (see story shove) received a boost last week via an agreement to provide turnkey systems vendor Versyas, Inc. in West wood, Mass., with RSC System/6000s and related software... Sun

RISC System/6000s and related software. . . . Sun Microsystems. Enc. has aligned with systems integrator General Electronic Information Services to market Unix-based document management systems.

# IBM expands OEM presence

Big Blue hawks PCs, workstations, mass storage and networking gear

BY THOMAS HOFFMA

PURCHASE, N.Y. — Seekin ways to generate increment business, IBM is putting a majo emphasis on the OEM channel. At a recent conference here

IBM executives laid out tious plans to grow what historically has been an insignificant market for the Armenk, N.Y., computer giant. Only 10 years ago, IBM was generating less than \$30 million per year in OEM sales.

A decade later, the picture has changed. A

unely with Apple omputer, Inc., Wang aboratories, Inc. and roupe Bull — have sped IBM achieve EM sales topping 700 million in 1991.

M now says it exscta OEM sales to top \$1 is year and \$3 billion in 1

this year and \$3 believe in 1933. Industry observers said they believe IBM's enormous size and scope should help it leverage OEM sales opportunities. "They have little experience, limited expertise and limited market share." said Peter Burris, director of commercial systems research at International Data Corp., a Framingbarn, Massibard market research firm.

cing people," he said.

OEM sales in the computatory had been limited to resale of hardware, semicondere, tors, chips and storage submitted.

But at IBM, the OEM

rick-by-brick
W a counting on sales to other
whosher systems manufacturers
whosher systems manufacturers
DEM's minemal
OEM revenues

E700
St. Million\*

500
St. Million\*

Chart States in Season

cus has been expanded to include worldwide alses of all BM products. OEM sales are broken down by various divisions throughout BM, sach as Networking Systems, Fernand Systems, Enterprise Systems and Advanced Storage and Retrieval Group.

"We'll talk on mybody about

thing [for OEM deals]," said on the Stadulis, IBM program ditor of OEM products for the

d networking gear
Interprise Systems Division.
For example, Adstar to date
as signed more than 60 OEM
stoners throughout North
merica, Canada, Europe, Ania
d the Pacific Riv., astd Richard

r of worldwide OEM opfor Adstar. Adstar OEM products include its 2½-in. and 3½-in. hard disk drives, high-end storage subsystems and tape drives. Last year, Adstar contributed

storage subsystems and tape drives. Last year, Adstar contributed 50% of IBM's \$700 million in OEM revenue. Hum Cordero, Personal Systems director of OEM products, pro-

of OEM products, projected that Personal Systems OEM revenue, including OEM nales of IBM's popular RISC System/6000 workstations and serv-

ers, will reach \$333 million by the end of the year. or IBM divisions are exsmaller revenue gains.

pecting smaller revenue gains Peter Souter Jr., director of Networking Systems OEM, and he projects \$50 million in 199 OEM sales for sid from the order of the control of the control of the working holds, which BMF rollout May 25 and has slated for detured to increase with the available ity of new products, such as the Advanced Pers-to-Peer Net working Node, which BMF rollour May 25 and has slated for detirery in the first quarter of 1991

## Symantec buys C tool developers

BY GARRY RAY

CUPERTINO, Calif. — Symmetric Corp. last week broadens its lineup of application development products with the acquaint products with the acquaint products and the condition of two dealers.

Company officials said the purchases of The Whitewater Group, Inc. in Evanston, Ill., and Multiscope, Inc. in Mountain View, Calif., will help flesh out its line of C and C++ compilers

and development tools.

"Our focus will be an corporate development with a comprehensive, cross-platform tool set and an open architecture," and Neal Goldman, product manager for Symantee's lan-

Value of the deals was estimated at \$12 million, including a metime charge covering mergr-related expenses.

With the acquisition, Syman tee added to its product in Whitewater's Resource Toolsis which allows users to modify the look and feel of Microsoft Corp. Windows splications: Object Graphics for C++, a platform independent class library for graphics applications; and Actor an object-oriented language and evelopment environment.

levelopment environment.

Multiscope will provide the company with the Multiscope Debugger, which runs under Windows and MS-DOS, as well as IBM's OS/2.

Imen't strategy Inalysts said the more

Analysts said the move is a good one for the \$216 million aoftware conglomerate, which has made no secret of its willinguess to acquire technology to fill holes in its product line.

Intent purchases, Mary McCalfrey, a software analyst at New York investment banker C. J. Lawrence, Inc., said, "They're not just walting into this market and asying 'Here we are. They're looking at something new and getting there before anyone else."

Other sources said the move is a precuracy to the company's anticipated release of Bedrock, a platform-independent class. In heavy that could make it ensire to develop applications for the Apple Computer, Inc. Macintosk, Wandows, MS-DOS and OS/2 en-

# Knowledge Ware gains GUI utilities in \$4.5M takeover

BY KIM S. NASH

ATLANTA — Knowledge Ware, Inc. once again demonstrated its "If you don't build it, buy it" philosophy with last week's \$4.5 million acquisition of Viewpoint Systems, a 40-person development tools company based in San Mateo, Calif.

teo, Calf.
The deal, which calls for \$2.5
ion in cash up front and aner \$2 million during the next
years, next Knowledge Wate
utilities for building graphiutilities for building graphiutilities for building graphiutilities for building graphimer interfaces (GUID — a
duct line that the complany
nised to provide in its 1 992
ement of direction.

cent takeovers of Lang Technology, Inc., Quinsoft UDM Technology, at least one product from the acquired company will be on the market in

nediately.
Flashpoint is a \$10,000 deskop tool for tacking Microsoft.
Orp. Windows-based interfaces
not existing host-based applicaions. The 18-month-old product
i installed at 150 firms in the
J.S., according to Viewpoint,
which claimed \$2.5 million is

More to come
The other addition to the family is Viewpoint's Accesspoint, a query tool accessing 520. servers and IBM's D82 from Windows clients. The product, to be priced between \$60,000 and \$80.000.

Tools for augmenting proarms not built with Knowledgeare's computer-sided software gineering environment mark a rondening of focus" for the impany, acknowledged Kim Kington, vice president of substitution

"Large IS shops have mul ple GUI needs that we should a dress," Addington said. Viewpoint's 15 value-add

Meanwhile, Monriedge Ware's own GJI builder, ADV Construction Workbeach, is dut latter this month. It was disposed specifically to add from size to programs develope with its Application Develonant Workbeach environment. Knowledge Ware will be fiverpoint's San Mateo facility research and developmen on will retain 50 of the 40 me of the programs of the program of the programs of the program of the programs of the program of the programs of the

## **TRENDS**



12,504 Total units shipped

Percent of total U.S. shipments

IBM 14% III er, Inc. 13%

Total units shipped 9.4 milli

8% Data General Corp.

or International Data Corp., Francagham, Mann

Personal computers

### NEXT WEEK

C omputerworld cele-brates its 25th anni-U brates its 25th anniversary by profiling 25 of the luminaries who made it an exciting quarter-century — from computing pioneer J. Presper Eckert to presidential campaigner H. Ross Perot. Characters as diverse as Charles Wang, Philippe Kahn, Tom Wetson and Steve Jobs decribe the ucceases, failures and visions of the future.



I f you're looking for a notebook display that you can see at an angle with sun beating down on it, you're in luck. Ditto for hefty hard drives. On the hetty hard drives. On the other hand, if you're look-ing for incredible battery life or prices under \$2,000, you may have to wait. For more trade-offs and tribulations in notebook computers, see Product Spotlight.

## INSIDE LINES

The tensor sample be tempted to break into a few bars of 
"Amazing Grace" this week an GSF Precision Bowli Tory and 
top unconfirmed by the control of the property of the control of the

will een etc. (Caristana in S. (Caristan

or to a mass remainders. A poly of the sense of the sense

But will registers ring?

In NCV will support Microsoft's next generation NT operation composers, some properties of the composers, societies to an adapt who attended a two-day before it the composers's handgeneries in Dayton, Olio, site the composers's handgeneries in Dayton, Olio, site the composers's handgeneries in Dayton, Olio, will also seem with the composers's handgeneries and the composers of the section of the control of the composers of the control of the first are larged composers, and control of the first are sold such that control of the control of the first are larged composers of the control of the co

Detections assumed, were self-binediscope, the application development tools makes whose planned merger like last year with Knowledge Whee cor-proces, is determined to final a partner. The Mountain Year, Calif.-based company has approached Knowledge Whee a cardrived, Tean instruments, with a similar merger-ploist de-velopment proposal, according to an Intellicory insider. TI has yet to accept on site the deal, the source said.

opping anchor

WordPerfect will not be apending its entire cruise:

which Gity this week talking about neutracturing:
mpany has some products up its aboves as well. The

conference is expected to see the launch of an E

Low Windows. WordPerfect for OS/2 may also

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